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# The Edinburgh Clinical and Pathological Journal

VOL. I. OCTOBER 13, 1883. NO. 1.

IT is a matter of surprise, that in Scotland, where so large a number of medical men receive their education, and in which the Schools of Medicine are of such universally acknowledged excellence, there should, up to this time, have been no attempt to issue a weekly Journal, by means of which the views of the profession might be fittingly represented, and the busy practitioner kept *au courant* with the advances of Medical Science.

Edinburgh, from its metropolitan character, and the fame and extent of its medical teaching, seems the proper place from which a Journal should emanate, which seeks to embody the ever-growing knowledge and keen observation of the profession throughout Scotland.

To supply this want will be the object of the conductors of *The Edinburgh Clinical and Pathological Journal*, the first number of which is now issued.

The Journal will be published weekly, and will consist of sixteen pages, of which about one-half will be devoted to Original Articles, and one-half to Reviews of Books, and Abstracts of British and Foreign Papers.

Each Article will be signed by the writer, thus giving the guarantee of personal responsibility for the facts stated and the opinions advanced.

In the first number there will appear abstracts of Papers on Medicine, including Mental Diseases; in the second, on Surgery, including Diseases of the Eye, Ear, and Throat; in the third, on Obstetrics, including Diseases of Women and Children; in the fourth, on Pathology and Therapeutics; and so on, in regular rotation throughout the year.

In order to utilise some of the valuable clinical material under observation in the various Hospitals throughout the Kingdom, as well as to compare different methods of treatment, it is intended to have from time to time Hospital Letters by accredited Correspondents. Reports of Meetings of the various Medical Societies will be given—also in the form of descriptive letters.

The Journal is intended to be purely scientific, and will not, as a general rule, express opinions upon questions connected with medical politics; but the right is reserved to admit signed letters or communications upon such questions, where circumstances seem to warrant their insertion.

Encouraged by the promised support of many writers of eminence, we enter upon this important work with the single object of promoting the rapid diffusion of reliable information in the various departments of Medical Science.

J. GRAHAM BROWN.
CHARLES W. CATHCART.
D. BERRY HART.

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# ORIGINAL ARTICLES.

## SOME LESSONS IN CONNECTION WITH THE PRACTICE OF SURGERY.

By THOMAS ANNANDALE,

SENIOR SURGEON TO THE ROYAL INFIRMARY, AND REGIUS PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH.

A CONSIDERATION of twenty-five years of large and varied experience in connection with the special study of surgery in hospital and private practice cannot but be useful, provided such experience includes honest and careful observation of unsuccessful and successful results, and of errors as well as of successes in diagnosis and treatment.

The surgeon who now devotes himself to the practice of surgery can no longer content himself with an ambition to excel in the dexterous use of the knife, forceps, and saw: but to be successful, he must be thoroughly educated in all branches of the profession; must, in addition to a practical knowledge of anatomy, be acquainted with all recent facts in physiology and pathology; and must be anxious to use such knowledge so as to carry out in practice the principles which new facts and new discoveries suggest. New suggestions in regard to the practice of surgery are almost daily being brought forward, but unless these are founded upon matured experience or sound physiological and pathological principles they are, as a rule, unworthy of imitation.

A tendency to think more of a mere operation than of the exact nature and relief of disease still exists, and therefore it is not very uncommon to meet with instances in which a symptom rather than the disease itself is treated by operative means, the result, as regards the cure of the disease, being very unsatisfactory.

A too minute specialism in practice has also tended, in my opinion, to make symptoms rather than the disease objects of surgical treatment; and, consequently, the results of operative surgery obtain discredit owing to a failure in the proper recognition and treatment of the disease itself. Certain expressions in connection with the practice of surgery are much too loosely employed. For instance, how common are the expressions, "He or she is not a proper subject for chloroform or other anæsthetic"; "He or she is not a fit subject for operative interference"; and "He or she is too old for an operation." In many cases the opinion given in these expressions is not founded upon any careful or correct data, but is simply a routine verdict given by a careless, ignorant, or prejudiced observer, and the result may be, and is, suffering unrelieved which admits of relief, and unnecessary pain, sorrow, and anxiety to patients and their friends.

In suggesting the following lessons from my own experience, I am quite aware that others have recognised the importance of, and have in their writings directed attention to, many of them; but I feel that the results of practical experience are important enough to make a repetition of them not undesirable, and I also hope that some of my remarks may be new or put in such a way that they will be useful as suggestions for consideration and further elaboration.

## ANÆSTHETICS IN SURGERY.

As the employment of anæsthetics is often one of the first considerations in the practice of surgery, I offer a few remarks upon the subject. The use of anæsthetics is not confined to operative and manipulative surgery, but is frequently of the greatest value in connection with the diagnosis of diseases and injuries. Anæsthetics are also, in certain cases, of service in relieving acute suffering or painful muscular contractions, and in such cases, there is often a remarkable tolerance of their employment. In illustration, I would mention the following instance of a poor blind lady who was under my care some years ago on account of scirrhus of the breast. The breast and tumour were removed, but so sensitive was this patient that any attempt to interfere with the dressings or the wound after the operation brought on such extreme excitability and mental suffering that I had to administer chloroform at every dressing of the wound for nearly one month, and this was done without any unpleasant symptoms resulting. This is only one of several cases which have come under my observation. It is well known that certain individuals are much more tolerant of anæsthetics than others; but, in addition to this, I cannot but think that in certain conditions there is a special tolerance, as in the case of certain drugs.

*The risks of Anæsthetics.*—The risks connected with all anæsthetics are, in my opinion, very much equal, and they may be divided into avoidable and unavoidable. The avoidable risks are: (1) careless administration, in which too large a dose is given, or in which a spasmodic closure of the glottis is allowed to continue long enough to obstruct seriously the respiration; (2) obstruction of the air-passages owing to blood, mucus, occasionally other fluids, and vomited matters passing into or accumulating in them. The first of these risks is to be prevented by care in administration, and more particularly by observing that the patient breathes along with the anæsthetic a proportion of air as pure as possible; and for this reason there should not be many assistants or onlookers, bending over the head of the patient and deteriorating the surrounding atmosphere; and a constant watching of the respiration, so that if it shows any signs of obstruction, means be at once used to relieve it. The best of these means being to push the lower jaw upwards and forwards, to draw forward the tongue to its full extent, and if these do not succeed, to introduce the finger through the mouth to the back of the throat so as to reach the glottis and ascertain if it is obstructed or spasmodically closed. In connection with these precautions it should be the rule to have at hand a mouth-gag, by means of which the jaws may be at once separated and kept apart so as to allow the free introduction of the finger or a tube. My practice now is always to have such an instrument with me, and I have found the value of it in more than one case.

The second class of risks may in many cases be avoided by having the head in a dependent position in operations in which these risks are likely to occur. In operating upon the throat, palate, mouth, or jaws when blood may pass down and enter the air-passages, I always have the head hanging over one end of the table, being supported in this position by the hands of an assistant, or by a special arrangement connected with the table. In certain operations preliminary tracheotomy or laryngotomy has been performed, and the upper part of the air-passages temporarily plugged so as to prevent any blood entering, but such a proceeding can rarely be necessary if the precautions mentioned be taken.

If obstruction to respiration takes place from these causes, and the dependent position and the introduction of the finger and removal of any substance which can be reached do not give relief, tracheotomy or laryngotomy should be performed without delay. It is only in this class of case that, I believe, opening the air-passages can be of service. I was recently removing the entire tongue in an old man with a short, thick neck. A little blood trickled from time to time into the larynx and trachea, and was at first coughed up, with relief to the respiration; but as the operation progressed, my assistant, Dr. Cotterill, observed that the breathing was becoming more and more obstructed, and it was evident that the blood was accumulating in the air-passages; the chloroform was removed, but the breathing became worse, and had almost ceased when I performed laryngotomy. Several clots were immediately coughed up through the laryngeal wound, and the patient was relieved, and the operation successfully completed. I performed laryngotomy in this case because on placing my finger over the short trachea in the neck, to ascertain its exact position, I felt a dilated left carotid artery partially overlapping it. Thus, a little lesson was illustrated as to the importance of carefully opening the air-passages, even in cases of sudden emergency; for had I directly plunged my knife into the trachea without proper examination of the neck, the vessel would in all probability have been wounded. I remember in another instance in which I had to open the trachea at a moment's notice, finding an aortic aneurism passing into the neck and covering the canal, and it was only by carefully pushing down the tumour, after the skin had been divided, that I was able to complete the operation. In this case also, a direct and careless plunge of the knife must have proved fatal.

If a patient has been properly prepared for the anæsthetic, as he or she always should be when possible, there is little risk of vomited matters causing serious obstruction; but in cases of emergency, when the stomach may contain solid or semi-solid matters, these may pass into the air-passages and cause suffocation. When operating a few years ago upon a feeble old woman for strangulated femoral hernia, vomiting ensued towards the conclusion of the operation. The respiration became obstructed, and death quickly took place. At the post mortem, the trachea and bronchial tubes were full of vomited matters. The feeble condition of this patient prevented her expelling the foreign substance from her air-passages; and in any similar case I would advise, as I have since practised, that the operation be performed without any anæsthetic, a stimulant being first administered by the rectum or subcutaneously.

When vomiting of the contents of the stomach does occur during the administration of an anæsthetic, it is always well to stay the inhalation until the stomach has emptied itself, and to turn the patient over upon one side, at the same time carefully observing that none of the vomited matters lodge in the throat and interfere with respiration. Mere "retching" is usually best relieved by a continuance of the anæsthetic.

When accumulations of mucus in the passages produce obstruction, the anæsthetic should be removed, the finger introduced, and the chest stimulated by cold douche and friction, to act in expelling the fluid.

The *unavoidable* risks are those which depend upon a stoppage or failure of the heart's action; and I am of opinion that, even with the best precautions, deaths from this cause will from time to time occur. Such accidents have taken place in patients of various ages and conditions of health, and I do not think that as yet we are in a position to say positively why some of these patients should die. A degeneration of the muscular structure of the heart, deposits of fat in its neighbourhood, and pericardial adhesions are the conditions which I believe to be most likely to lead to this class of risk, but deaths have occurred in which such pathological changes were not present, and they can only be explained by supposing that the anæsthetic, the shock of the operation, or both combined, act so as to produce a collapse of the cardiac action. It is not necessarily the severity of the operation, or the amount of blood lost, which produces shock, but it is the situation of the part being operated upon, and the nervous peculiarity of the patient which influence this condition. In connection with the question of shock, an interesting fact, frequently observed, may be referred to. It is, that the diseased part or parts to be operated upon frequently remain sensitive to touch for a short time after the anæsthetic has produced general insensibility. May it not be that in some cases the operation is performed upon a portion of the body still sensitive, and therefore capable of producing a shock through the nervous system, and so acting upon the heart?

The principal lessons I have learned in connection with these unavoidable risks are: (1) To keep the patient in the horizontal position; (2) to be certain that all parts of the body are insensible to pain before operating, more particularly when the operation includes an important tissue; (3) to administer a small quantity of some stimulant (half a glass of whisky or brandy) by the mouth about ten minutes before giving the anæsthetic in all cases where symptoms point to any weakness of the heart's action, or where the operation is severe, or the patient's condition such as is likely to be affected by sudden shocks; (4) to carefully watch the pulse as well as the respiration, and be prepared at once to stay the anæsthetic, and to give an additional stimulant by subcutaneous injection, or by the rectum, if there are any marked signs of failure in the heart's action. The subcutaneous injection of from 20 to 30 minims of ether is a valuable addition to our stimulants, as it can be at once and safely used.

I would not be inclined to persevere with the anæsthetic in any case in which the symptoms of heart weakness continued markedly after the employment of one dose of the stimulant, but would prefer to complete the operation or manipulation without further anæsthesia.

*(To be continued.)*

## CASE OF HERNIA INTO THE UMBILICAL CORD—NEW METHOD OF TREATMENT—RECOVERY.*

By T. R. Ronaldson, M.B., F.R.C.P.E.

TRUE umbilical hernia occurs in two forms, in both of which the abdominal viscera escape by the opening in the abdominal wall through which the umbilical vessels go in their passage between the interior of the child and the umbilical cord. In one form, however, the hernial protrusion is bounded by skin and the cicatrix of the umbilicus, the navel; in the other, it passes beyond the limits of skin and extends into the umbilical cord, being bounded only by the amniotic covering of that structure. In the former, the hernia occurs, as a rule, after separation and cicatrisation of the cord; in the latter, it exists in intra-uterine life, and is apparent at birth.

The case of umbilical hernia about to be described belonged to the latter class, and it is recorded because the method of treatment adopted is new, so far as I know, and has proved eminently successful.

The subject of the hernia, a girl, was born on the 13th of February of this year. At birth the appearance of the hernia was as follows:—It projected downwards and forwards from the region of the umbilicus for from four to five inches, the first and longer part (next the abdomen) being tubular, about two inches in diameter, and having skin as its covering, the second and terminal part being rounded, about the size of an apple, and being enveloped in the amniotic covering of the cord. The hernia had protruded into the upper surface of the commencement of the cord, which lay below and concealed by it (*vide* diagram).

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* This case was described in a paper read before the Edinburgh Obstetrical Society in May, 1883, and a short note of it appeared in the *Edinburgh Medical Journal* for August, 1883.

The terminal amniotic covering and the peritoneal sac were perfectly transparent, so that the hernial contents were distinctly seen to consist of numerous pale-coloured, empty coils of small intestine, coils of large intestine (dark coloured from the presence of meconium), and a portion of liver showing as a dark-blue, solid mass. The child presented by the head, and as the direction of the hernia was downwards and forwards (at a more acute angle than is represented in the diagram), the labour did not appear to be appreciably delayed by its presence.

The amniotic covering looked very thin and frail, and it was only after the child had cried lustily, and had demonstrated that there was no immediate danger of rupture of the sac, that I felt at liberty to leave her until I should have thought over this unexpected condition of matters, for I was ignorant of any practical help to be got from the literature of the subject.

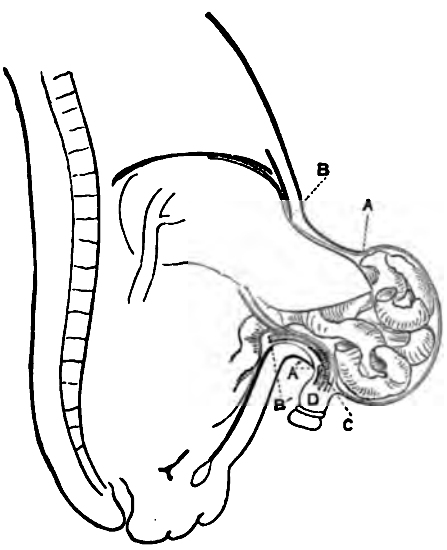
Having thought the case over, and obtained the assistance of two medical friends, I proceeded, six hours after the birth, to deal with the hernia.

It was evident that with a hernia of such a size (the sharp-edged, deep, aponeurotic opening in the abdominal wall was from two to two and a-half inches in diameter), reducing it and applying a pad and bandage would have been of no service, because, in the first place, the amniotic covering would soon have sloughed, and thereby exposed the child to all the risks of peritonitis; and because, in the second place, it would have been practically hopeless, the amniotic covering being gone, to attempt to prevent wholesale extrusion of the abdominal contents by means of such treatment. Even as it was, at the end of six hours the amnion and peritoneal sac had lost their original perfect transparency and become dimly translucent, and the intestinal contents were distinctly congested.

The only method of treatment that commended itself to my mind as being likely to be at once effective and safe, was to open into the sac, to pare the edges of skin round the circle at A A′ (*vide* diagram), and to unite these raw edges by suture. The chief difficulty obviously lay in the presence of the umbilical cord and its contained vessels, as these structures had to be cut through and removed in carrying out this plan of treatment.

I first of all reduced the hernia, and gave the tube of skin in charge to one assistant, whose duty was, by pinching it, to try to prevent the extrusion of abdominal contents. I then with scissors cut through the amniotic covering and peritoneal sac.

The next step was to deal with the vessels of the cord, so as to permit of its removal without hæmorrhage. In consequence of the under surface of the tube of skin being so short this could not be done without permitting the escape of coils of intestine.



A A'—Junction of skin and amniotic covering of cord.
B B'—Deep opening in abdominal aponeurosis.
C—Umbilical vessels
D—Umbilical cord.

The attempt to retain the abdominal contents in the way described was accordingly given up, and a large extrusion of liver and intestines rapidly occurred. I was however, now able freely to get at the umbilical vein and hypogastric arteries, so as to ligature them at a sufficient distance from their entrance into the cord to permit of the removal of the latter and of the edge of skin at A'. I ligatured these vessels from the peritoneal surface within the tube of skin by passing a needle threaded with catgut ligatures, one round both arteries and one round the vein.

Having rawed the edge of skin round the circle at A A', I managed, with very great difficulty, and after some time, to return the protruded abdominal contents, which were, as previously stated, distinctly congested by this time. To retain them while I passed the necessary sutures, I pushed a sponge through the tube of skin into the mouth of the opening through the abdominal wall (at B B'). This answered its purpose admirably, and I had no difficulty in passing sutures of silk-worm gut through skin and peritoneum, so as to bring their raw edges into apposition.

The sponge was removed as they were tied. A few superficial horse-hair sutures were used to secure more perfect adaptation. The dressing consisted of suitable pads of boracic lint soaked in carbolic oil, and kept in position by a flannel bandage. No chloroform was administered, and the child apparently suffered little pain. It went to sleep shortly afterwards, nursed like a healthy child, and never appeared in the least the worse of the treatment to which it had been subjected. The wound healed by the first intention, and the sutures were removed eight days after the operation. It now suffers from an ordinary umbilical hernia, but otherwise is in vigorous health.

**Remarks.**—Had I the same operation to perform again, I should, after reducing the hernia, pinching the tube of skin, and opening the sac, at once introduce a sponge into the deep opening through the abdominal aponeurosis, to act as a plug to retain the abdominal contents, and at the same time to prevent the passage of blood into the peritoneal cavity. The vessels of the cord could be perfectly well dealt with in this way, and the excessively awkward protrusion of viscera would be avoided.

Having met with this case, I have naturally examined into the literature bearing upon such a condition. Cases of exomphalos have occurred where the malformation has been so extensive that manifestly any amelioration by operative procedure could not have been looked for. But cases admitting of relief have hitherto been treated in two ways—either, after reduction, by pad and bandage, or by ligature of the tube of skin. Cures by these methods have resulted; but they could only have occurred probably where the hernia was of small size, much smaller than that above recorded. Moreover, as healing with such methods can only take place through the stages of ulceration, granulation, and subsequent tardy union, the risk of peritonitis, troublesome intestinal adhesions, slipping of pad and bandage, and consequent visceral protrusion, must be considerably greater.

The only suggestion of treatment at all similar to that carried out in this case, which I have been able to discover, is to be found in a note by Lawson Tait in his translation of Steiner's "Diseases of Children," 1874, 2nd German edition, page 301. It is so interesting as to be worth giving *in extenso*:—"I have seen only one case of this malformation, and I did not succeed in benefiting the patient; but a further consideration has induced me to believe that, if I had been somewhat more heroic in my treatment, the case would have had a more satisfactory ending. I saw the child in consultation with my friend and colleague, Dr. Charles Warden; and it presented at the umbilicus a huge mass, very like a large penis affected with a very severe gonorrhœa. It evidently contained gut, and, from several cracks on the covering, it was clear that the tissue of the cord—*plus* peritoneum, perhaps, though this is doubtful—constituted the sac. In our efforts to reduce the hernia, we ruptured the sac, and the bowels protruded. We then saw that they were adherent everywhere to the sac, but that the adhesions did not bleed when torn. Neither of us had ever seen such a case, and I could find no advice for treatment under such circumstances anywhere. We, therefore, carefully covered the intestines, and left the case to nature, who ended it in ten days. I now believe that, if we had boldly picked off as much of the sac as we could, returned the intestines, and stitched up the aperture, we should have done what was right, and might have saved the patient.—L. T."

No reference is here made to the ligaturing of the umbilical vessels and removal of the umbilical cord before stitching up the aperture; but I cannot but believe that, if Mr. Tait had met again with such a case from the very first, he would have acted essentially as I did.

In cases of such malformation, which are not so extensive as to preclude all hope of cure by any treatment whatever, I can recommend the method of treatment above described as simple, easy, effective, and safe.

Since the above was written a similar case has been recorded in the

*Lancet* of 22nd September, by C. W. Robinson, M.R.C.S., L.S.A., of Tynemouth. The child was born on the 16th January of this year. Mr. Robinson operated thirteen hours after the child's birth, with the same end in view that I had, but by a different procedure from that which I adopted. During the operation, it was found that a portion of intestine had already become gangrenous, and from this, apparently, the little patient died within two hours of the operation. It would appear, therefore, that it is important to operate early in such cases. Mr. Robinson does not mention how he dealt with the umbilical cord.

◆

## *REVIEW.*

**Keith.**—NOTES OF CASES TREATED IN WARD XIX. OF THE ROYAL INFIRMARY. Oliver & Boyd, Edinburgh, 1883.

IN this pamphlet Mr. Skene Keith reports all the cases operated on by Dr. Keith in Ward XIX. of the Infirmary since it was opened in January, 1880. At first, operations were performed in the large operating theatre, to which the patients were carried after being etherised in bed. This, however, had to be abandoned, owing to its ill effects on the patients; and Dr. Keith now operates in one of his small wards.

Complete Listerism was given up, so far as the use of the spray was concerned. The use of the spray was not found a preventive of septicæmia, and proved dangerous to the patient (*v.* table).

Ovariotomy was performed sixty-nine times; hysterectomy ten times for bleeding or large fibroids, and the uterus was removed twice through the vagina,—once for cervical cancer and once for inversion. In the case of inversion there was a fibroid tumour in the fundus.

In one case partial ovariotomy was performed, and an attempt to cure made by suppuration and drainage.

Two unique cases are mentioned—viz., a tubo-interstitial pregnancy removed by abdominal section, and a large dilated gall bladder containing 32 lbs. of bile almost entirely removed and cured by drainage.

All serous cysts of the broad ligament were cured by tapping. The following table gives the results of operation:—

*Carbolic Acid Spray Cases.*

| | Cured. | Died. | Total. |
|---|---|---|---|
| Ovariotomy, . . . . . . | 18 | 3 | 21 |
| Hysterectomy for fibroids, . . . | 2 | 0 | 2 |
| Battey's operation, . . . . . | 0 | 1 | 1 |
| | 20 | 4 | 24 |

24 cases with 4 deaths = 16·66 p.c. mortality.

*Boro-glyceride Spray Cases.*

| | Cured. | Died. | Total. |
|---|---|---|---|
| Double ovariotomy with hysterectomy, | 0 | 1 | 1 |
| Hysterectomy for fibroid, . . | 1 | 0 | 1 |

2 cases with 1 death.

*No Spray.*

| | Cured. | Died. | Total. |
|---|---|---|---|
| Ovariotomy, . . . . . . | 46 | 1 | 47 |
| Hysterectomy for fibroids, . . . . | 7 | 0 | 7 |
| Battey for fibroid, . . . . . | 1 | 0 | 1 |
| Case of interstitial pregnancy, . . . | 1 | 0 | 1 |
| | 55 | 1 | 56 |

56 cases with one death = 1·78 p.c. mortality.

Details of several of the cases are given, and many points of interest brought forward. In most of the ovariotomies the pedicle was treated with the cautery and dropped; occasionally the ligature was employed. In all the fibroids except one, the pedicle was treated extraperitoneally. Dr. Keith's mode of operating, his careful peritoneal toilette, use of drainage in suitable cases, &c., are now so well known that further description is unnecessary.

The whole Report is well worthy of perusal, and will sustain Dr. Keith's reputation as one of the most successful operators in this department in the world.

D. B. Hart.

# *REPORT ON MEDICINE.*

## *RECENT PAPERS.*

1. **Rosenbach.**—Zur Lehre von der Albuminurie. (On Albuminuria.) *Zeitschrift für kl. Med.*, vol. vi. (1883), p. 240.
2. **Ferrier.**—On Hemiplegic Muscular Atrophy of Peripheral Origin. *Brain*, Pt. xx. (1883).
3. **Leube.**—Beiträge zur Diagnostic der Magenkrankheiten. (Contributions to the Diagnosis of Diseases of the Stomach.) *Deutsch. Arch. f. kl. Med.*, vol. xxxiii. (1883), p. 1.
4. **Otis.**—Persistent Recurring Reflex Spasm of the Bladder during a period of over Twenty Years, resulting in Thickening of its Walls, Dilatation of the Ureter, and Hydronephrosis—Death from Uræmia. *Tr. of the N. Y. Academy of Medicine.* Second Series, vol. iii. (1883).
5. **Thin.**—On a Peculiar Disease of Hot Climates (*Psilosis linguæ—Psilosis mucosæ intestini*). *Practitioner*, Sept., 1883.
6. **Gerhardt.**—Zur Lehre von der Gelbsucht. (On Jaundice.) *Zeitschrift f. kl. Med.*, vol. vi. (1883), p. 78.

1. **Rosenbach on Albuminuria.**—Undoubtedly the author of this interesting article is correct in saying that the study of albuminuria will lead to important conclusions more readily if cases of a transitory and functional kind are selected for observation, than if those only in which there is lesion of the renal textures be studied. He has accordingly given the results of his observations upon cases of the former description under the following headings:—

(1.) *Coincidence of albuminuria with headache in individuals who constantly show signs of increased aortic pressure.*—He observed in four cases that during or immediately after attacks of severe headache there was distinct, though only very temporary, albuminuria. These individuals were plethoric but not very corpulent, and had suffered for years from periodic attacks of headache, which sometimes took the form of migraine, and sometimes of pure neuralgia, which lasted from twenty-four to thirty-six hours, and which were accompanied with complete loss of appetite and sleeplessness. The urine was copious, clear yellow, acid, specific gravity 1012-15, and showed distinctly the presence of albumen. There was no formed precipitate. The heart's action was strong, the left ventricle somewhat hypertrophied, the arteries full, and the blood pressure in them high. The very interesting observation was made that simultaneously with the cessation of the headache, or immediately thereafter, the albumen disappeared from the urine. This relation of headache and albuminuria, the author thinks, may be explained in the following ways:—(1) The headache and albuminuria may both be the result of an advance of the disease in the kidneys (all the symptoms pointing to cirrhosis), and the headache would then have to be regarded as the result of a slight uræmic attack. This, however, can hardly be the true explanation, as the amount of renal lesion can be but very slight in these cases. (2) We may suppose a sudden increase of the renal lesion producing an increased blood pressure, which might account for the headache and for the albuminuria. This supposition cannot, however, be entertained, for there is no such increase of blood pressure to be detected at the time of the headache above what there is at other times. (3) One may suppose that the headache produces an increased arterial pressure, and that that in turn leads to albuminuria. (4) The headache, albuminuria, and hypertrophy of the heart may all be the result of a change in the condition of the blood, the increase of arterial pressure being caused by an increased difficulty in driving onward the blood stream.

(2.) *Intermittent albuminuria, of much longer duration than that already referred to, with cardiac hypertrophy and well-developed Panniculus adiposus.*—The three patients presenting these symptoms whom Rosenbach had an opportunity of observing complained much of palpitation and dyspnœa, which occurred frequently during a few days, and then left, to return again after some days' interval. The urine during the days on which these attacks occurred was increased in quantity, and contained much albumen, the coagulum standing in the test-tube one-third the height of the urine The liver in each case was large and fatty. The whole symptoms of these cases pointed to cirrhosis of the kidneys. From these two sets of cases Rosenbach goes on to deduce certain general principles regarding cirrhosis of the kidneys. Into the details of his interesting argument we have not space to go, and can only give his conclusions in a general way. The symptoms of that condition—hypertrophy of the heart, albuminuria, and polyuria—are not, he thinks, to be looked upon as the result of textural and functional changes in the kidneys, but as caused by a permanent increase of the quantity of the blood, or a qualitative change in that fluid. He sees in the clinical picture of renal cirrhosis, not a genuine renal lesion, but a compensatory process, an increased activity of the organism, which leads first of all to over-action of the kidneys, and subsequently to their atrophy.

(3.) *Cases of transitory albuminuria apparently of a purely functional nature (hæmatogenic albuminuria of Bamberger).*—In several cases of accumulation of pus in the tissues Rosenbach observed albuminuria, and as it was possible from the symptoms to exclude disease of the kidneys, he concludes that the albumen was absorbed from the pus, and that the apparently pathological state of the urine was simply a compensatory process by which the organism freed itself from a qualitative change in the blood mixture by the help of its excreting organs.

The author has also observed cases of albuminuria without polyuria, in young persons, who exhibited signs of gastric disturbances. These individuals were anæmic, suffered from diarrhœa, vomiting, dyspepsia, &c., and they all recovered health under treatment. In such cases Rosenbach supposes that as a result of changes in the body during the period of development, the blood either becomes overladen with the products of the destruction of albumen, or, in consequence of changes in the blood-preparing organs, loses its power of taking up albumen, or of combining what is taken up.

2. **Ferrier on Hemiplegic Muscular Atrophy of Peripheral Origin.**—Inflammation of peripheral nerves, experimentally induced in the lower animals, has been shown frequently to extend to the spinal cord, and to result in meningeal and myelitic inflammation. Many instances of a corresponding condition in man are on record, in which, after injury of a nerve, atrophic paralysis has set in in regions not related to the injured nerves. A case of this kind is here recorded by Dr. Ferrier. The patient was a young man, aged twenty-seven, who had left hip-joint disease in childhood, and who had recovered with an atrophied limb. A few months before he was seen by Dr. Ferrier he had rapidly lost power in the leg, and this was followed by numbness and weakness of the left hand, and still later by numbness in the ulnar region of the right hand. The wasted muscles of the left hand showed well-marked reaction of degeneration. In this case Ferrier supposes, that as a result of the articular affection, trophic changes occurred in the lumbar region of the cord, and that from this point a sub-acute myelitis extended both transversely and upwards so as to involve the arms.

A still more rare condition is a true hemiplegic form of muscular atrophy following neuritis, of which Ferrier here gives an example. The patient, aged twenty-eight, a member of the medical profession, received in 1877 a wound of the left hand, when shooting, from the bursting of his gun. The hand had to be amputated. For the next two years he experienced daily pain in the stump, and about eighteen months after the injury he began to feel as if a piece of parchment were drawn over the left side of his face, and later on he observed that wasting of the left side of the thorax and abdomen, and of the left leg, was taking place. Re-amputation was performed by Mr. Lister in 1882, and since then, under galvano-faradisation, the atrophy of the left side of the body has disappeared, and he appears perfectly recovered. The examination of the stump by Mr. Watson Cheyne showed the presence of a firm neuroma, about the size of a hazel-nut, affecting the divided end of the radial nerve. Microscopic examination showed that there was chronic inflammation, in an active state, along the trunk of the nerve. Whether the symptoms indicated a morbid change in the anterior horns of the cord ascending and descending from the point of attachment of the inflamed nerve, or whether they resulted from a mere functional depression, the result of long-continued peripheral irritation, can only, as the author says, be a matter of speculation. The case is, however, a very interesting and important one.

3. **Leube on the Diagnosis of Diseases of the Stomach.**—The main portion of this article is occupied with a discussion of the diagnostic value of the stomach-tube. The use of the tube in diagnosis is chiefly in two directions—(1) The determination of the duration of digestion; and (2) the estimation of the strength of the gastric juice in individual cases.

The first of these objects Leube attains in the following manner:—The patient receives for a meal the following articles—soup and a large beefsteak, white bread, and for the next seven hours swallows nothing. At the end of that period the stomach is washed out, and the fluid tested. From an extensive experience of this method, Leube has been able to establish the following facts:—(*a*) A healthy stomach will complete the digestion of such a meal at the end of the seven hours, and the fluid obtained will be found to be completely clear, or at most to contain a few flakes of mucus. (*b*) This method of investigation may safely be used in all cases, except only in gastric ulcer, provided that the tube be made sufficiently soft. (*c*) According to the result of this test diagnosis and treatment are determined. If the fluid is clear, then the stomach is functionating normally; and if dyspeptic symptoms are present, then it is probably either a case of gastralgia, ulcer, or nervous dyspepsia.

The determination of the strength of the gastric juice is somewhat more difficult. Some method of stimulation must be employed to obtain a pure specimen of gastric juice. This may be either mechanical, chemical, or thermic. Of these the most practical is the last, and it is carried out as follows:—The empty stomach is first carefully washed out with about 400 c.cm. lukewarm water, and the completely clear fluid which comes back tested with litmus paper until it is found to be neutral. The operator then introduces 100 c.cm. of iced water through the tube, which is immediately withdrawn. After ten minutes the tube is again introduced, and the stomach completely washed out with 300 c.cm. of water. What comes back through the tube is divided into two parts, one of which is tested with litmus to ascertain its acidity, and the other is treated in the following manner:—If it is not already acid, it is acidulated with hydrochloric acid, and it is then placed in an incubator, after some small pieces of albumen have been added. The time required completely to digest the albumen will give an index of the digestive power in the particular case.

The great importance of this method of observation in diagnosis, and still more in regulating treatment, must be abundantly apparent.

J. Graham Brown.

4. **Otis on Spasm of Bladder causing Hydronephrosis.**—In this paper Dr. Otis relates the history of a case of hydronephrosis, resulting from persistent spasm of the neck of the bladder as the result of irritation reflected from some point of the urethra. On post mortem the bladder was found thickened, the pelvis and calyx of each kidney greatly dilated, and the ureters dilated so that their calibre nearly equalled that of the small intestine.

This case supports Dr. James's explanation of hydronephrosis as the result of cystitis. The frequent micturition entails frequent contractions of the bladder, and consequent frequent obliteration of the lumen of the bladder portion of the ureter. D. B. Hart.

5. **Thin on a Peculiar Disease of Hot Climates (Psilosis).**—This disease, which prevails among the foreign residents at Chinese ports, appears to be very little known. It usually first shows itself by an attack of diarrhœa in the early morning, which passes off in the course of the day, to return again the next morning; and this state of matters may continue, without any other symptom save debility, for many months. After this first stage has persisted for some time, the second sets in, marked by dyspeptic symptoms of various kinds, soreness of the mouth, pain after eating, nausea, and loss of appetite. In the third stage the patient exhibits marked signs of marasmus. The tenderness of the tongue appears to be a prominent symptom. As to the pathology of the condition, Dr. Thin thinks that the disease evidently consists in a defect of the formative power of the epithelium of the mucous membrane of the tongue and intestine, sometimes of the one, sometimes of the other, and sometimes of both. He thinks it not certain that it is due to malaria. Milk diet appears to be the most important part of the treatment.

**6. Gerhardt on Jaundice.**—The whitish yellow fæces which are characteristic of jaundice have been frequently investigated, but no reference has ever been made, so far as we know, to the following peculiarity which Gerhardt here describes. On microscopic examination he found that such fæces contained a mass of needle-shaped crystals which very closely resemble those of tyrosin, along with bales of leucin. When the fæculent matter is shaken up with water, the mixture forms four layers,—the uppermost, which is thin and milk-white, consisting almost entirely of fat globules, the other three containing the crystals mentioned. If a portion be removed, boiled with water, and filtered, the filtrate gives the tyrosin reaction with Millon's reagent, becoming red and giving a red precipitate. The patients whose fæces Gerhardt thus investigated suffered from catarrhal jaundice, and it is not clear whether the common bile duct only was obstructed, or whether in addition there was occlusion of the pancreatic duct. It is, therefore, a question whether the presence of crystals of leucin and tyrosin in the fæces was due to the unhindered action of gastric juice in the intestines, to the presence or absence of pancreatic juice without the accompanying bile, or was only the result of the decomposition of animal food in the intestines. In one case Gerhardt found these crystals when no jaundice was present—viz., in a very emaciated girl suffering from tubercular peritonitis.

J. Graham Brown.

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# *REPORT ON MENTAL DISEASES.*

### *RECENT PAPERS.*

1. **Luys.**—La Structure de l'Écorce Cérébrale. (On the Structure of the Cortex Cerebri.) *L'Encéphale*, No. 2, 1883.
2. **Pitres.**—Sur l'État des Forces chez les Hemiplegiques. (On the Loss of Power on either Side in Hemiplegia.) *Archiv. de Neurologie*, No. 10, 1882.
3. **Ball and Regis.**—Les Familles des Aliénés au point de vue Biologique. (The Alliances of General Paralysis and Insanity.) *L'Encéphale*, No. 5, 1883.
4. **Bertholle.**—Asyllabie ou Amnésie partielle et isolée de la Lecture. (Asyllaby, or Loss of Power of Reading.) *Annales Medico-psychologiques*, No. 1, 1883.

1. **Luys on the Structure of the Cortex Cerebri.**—In a paper on this subject this distinguished neurologist says, that the nerve-cells of the brain and spinal cord are of all shapes, and only differ from one another by their volume. The cells occur in layers, and their filiform processes ascend towards the outer part of the hemispheres. Each cell is thus associated with the cells above it as well as with those at each side. Dr. Luys refers to his photomicrographic plate to show that those microscopists who have described, with such precision and prolixity, six layers in the grey matter of the hemisphere, have fatally wandered from the reality of nature. No doubt these nerve-cells are distributed in layers

and in a certain order; but if the number is to be counted, there are perhaps as many as fifty or sixty strata in the thickness of the cortex. The largest, or giant cells, are found in the deepest part of the cortex.

2. **Pitres on the Loss of Power on either Side in Hemiplegia.**—Following out the observations of Brown-Séquard, Dr. A. Pitres, of Bordeaux, has in a study of 40 cases of hemiplegia—20 males and 20 females—arrived at the conclusion that when the paralysis results from a cerebral lesion, the affection is not confined to the opposite side of the body, but is shared by all the four extremities, though in an unequal degree.

In measuring the normal strength with the dynamometer, Dr. Pitres has found that while the right arm is always stronger than the left, save in left-handed people, in half the cases studied the left leg was stronger than the right one.

In hemiplegia of cerebral origin, the limbs of the opposite side are always weaker than in the normal state; but in right hemiplegia the left extremities are in proportion less weakened than those of the right side are found to be in left hemiplegia. The loss of strength in the opposite limb is greater in the arm than in the leg. The weakness is seldom so great as to impede voluntary movements. It is more marked with recent hemiplegia, showing that it is not owing to loss of strength from confinement or mal-nutrition. In fact, the strength gradually returns to the limb, the leg recovering its force sooner than the arm.

3. **Ball and Regis on the Alliance of General Paralysis and Insanity.**—In a study of the family history of the insane, the authors have arrived at the conclusion that in the family of those attacked by general paralysis there is a larger portion of cerebral affections than in normal families, but not a larger proportion of cases of insanity.

In the families of those who take other forms of mental derangement than general paralysis, there is a preponderance of insane members. Thus this morbid proclivity distinguishes them both from the families of general paralytics and from normal families who have no special liability to insanity.

4. **Bertholle on Asyllaby, or Loss of Power of Reading.**—This article contains a report of an observation by Dr. Bertholle upon a man who, after a congestive attack accompanied by epileptic fits, preserved the power of speech and of writing, but lost that of reading. He lost the power of gathering together in the mind the syllables and words with that quickness which is necessary to fluent reading. To this particular morbid symptom, which is a variety of partial aphasia, the author gives the name of Asyllaby. The patient afterwards became hemiplegic on the right side, and aphasic after new apoplectic attacks. But during several years the asyllaby alone remained, without any aphasia, and the patient could only read by spelling the words, letter by letter, very slowly. This proves that the affection did not consist of that variety of partial aphasia which has been called word-blindness, and which consists in the absolute impossibility of recognising written characters with the eyes, although the patient can speak and even write. The subject of this observation recognised and read letters because he could spell; he had only lost the power of uniting these letters, of co-ordinating and grasping the syllables—in a word, of reading fluently.

WILLIAM W. IRELAND.

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## ORIGINAL ARTICLES.

### A CONTRIBUTION TO THE PATHOLOGY OF THE LYMPHATICS OF THE FEMALE PELVIS.

By D. BERRY HART, M.D., F.R.C.P.E.

IN this communication I wish to draw attention to one or two points in the pathology of the lymphatic system of the female pelvis, as illustrated in two cases to be briefly narrated.

*Case* 1.—A. B., *æt.* twenty-seven, consulted me in May, 1882, as to her state of health. She was an under-sized, wretchedly thin girl, who had felt unable for her usual occupation of a domestic servant; but the medical men whom she had consulted had been unable to find anything tangible to account for her condition. When I saw her, however, the inguinal glands of the left groin (those parallel to Poupart's ligament) had begun to be enlarged, and the left leg was painful and somewhat swollen. In the vast majority of cases, enlargement of the inguinal glands parallel to Poupart's ligament, means some irritation in the external genitals or lower fourth of the vagina, an irritation either syphilitic, gonorrhœal, or cancerous. The external genitals and vagina were in this girl, however, perfectly healthy, and the condition of part was, further, virginal. Deep palpation of the left iliac region gave a sense of resistance at the left margin of the true pelvis; and on bimanual examination of the pelvic organs I found the following condition:—The normal-sized uterus was lying close to the right margin of the true pelvis. At the left side of the true pelvis could be felt a firm resisting mass, about the size of half a cocoa-nut. It seemed firmly fixed to the pelvic wall, and gave no feeling of fluctuation.

The DIAGNOSIS I gave was that of a malignant tumour in the subperitoneal tissue in the true pelvis, having the situation already described, and spreading through the lymphatics. The other possibilities were—

1. An inflammatory condition.
2. Malignant peritoneal disease.

1. The absence of fluctuation, the density of the swelling, and the want of any history as to blood effusion, abortion, or any inflammatory reaction, put this out of the question.

2. Malignant peritoneal disease usually begins in the ovary, involves

the pelvic peritoneum soon, does not displace the uterus, and soon sets up ascites.

The next question that comes up is of course, Did the diagnosis given explain all the symptoms and physical signs? The chief symptoms were pain and œdema of the leg. The pressure of the mass on the pelvic nerves and blood-vessels was sufficient explanation of this. But how as to the enlargement of the inguinal glands when there was no primary affection of the external genitals and lower fourth of vagina, whose lymphatics pour into these glands? This was at once explained by the knowledge of the anatomical fact that at the obturator foramen, on its pelvic aspect, there lies a gland or collection of glands—the obturator glands of M. Guérin—which communicate with the inguinal glands.

The after progress of the case need not be detailed. Any operation was hopeless, and one could only palliate the pain by large doses of morphia given hypodermically. The girl died miserably about six months afterwards.

On post mortem the pelvis was removed, and the lithograph gives a view of the parts as seen through the brim. The displaced uterus (B), subperitoneal malignant mass (A), enlarged inguinal glands on both sides, and the large mass of the sacral glands (C) are well seen.

On more minute examination, I found the enlarged obturator glands, as well as the sacral ones, in front of the sacrum. The primary tumour (A) did not communicate directly with the enlarged left inguinal glands. Microscopical examination showed it to be a round-celled sarcoma. This case illustrates, therefore, not only a rare form of pelvic disease, but will draw attention to the lymphatic communication between the obturator glands and those of the inguinal glands parallel to Poupart's ligament.

*Case* 2.—I was asked by Mr. Chiene to see an old woman who had a lump in the groin, which she said had come down suddenly after a strain, and was causing her pain about the hip. The lump was hard, painless, and did not seem hernial in its nature. No complaint referable to the genitals was made. The external genitals were normal, but the finger passed into the vagina came on a bleeding and evidently epitheliomatous condition of the lower part of the anterior vaginal wall. The whole case was perfectly clear; the inguinal glands were enlarging from vaginal infection, and the radiating pains were due to implication of the sacral glands.

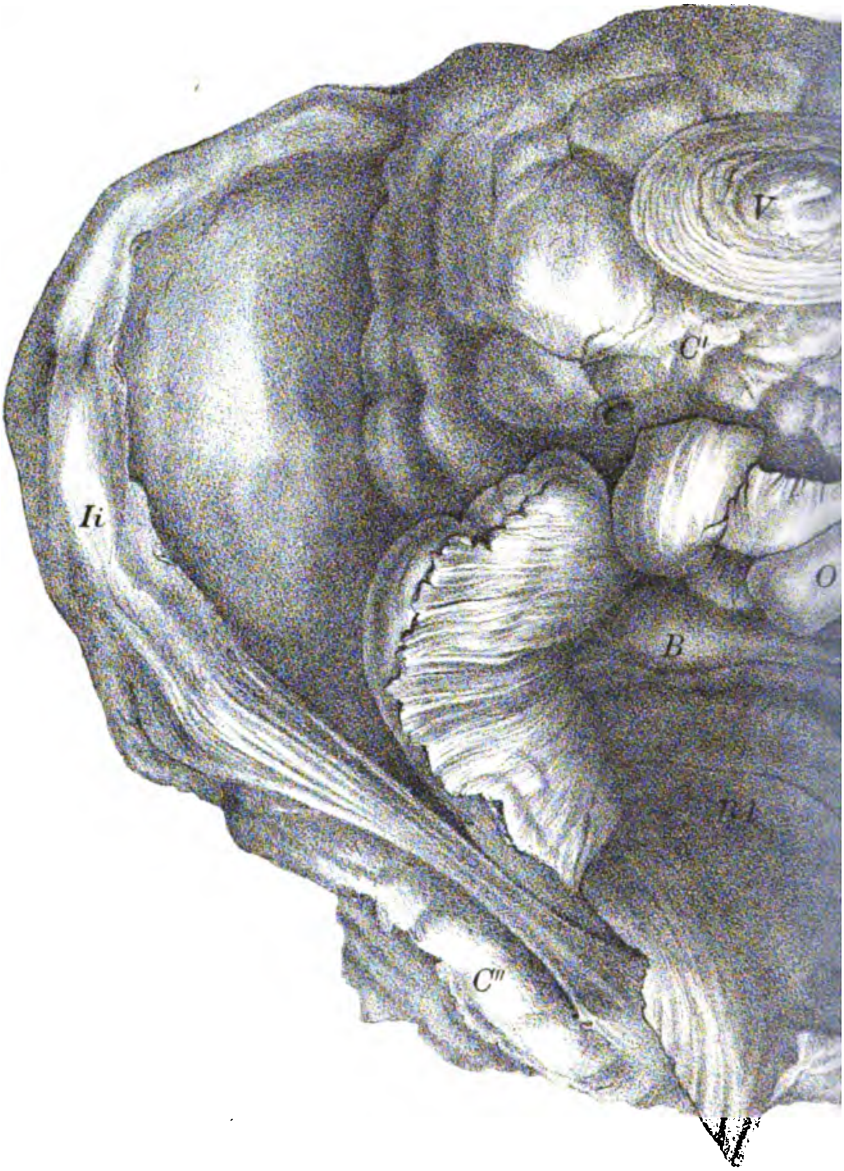
We may recapitulate, therefore, as follows:—

Enlargement of the oblique inguinal glands may be due to syphilitic gonorrhœal or malignant affections of the external genitals and lower fourth of vaginal wall, the lymphatics of which pour into these. These glands, however, receive branches from the obturator glands of Guérin, and may, therefore, be enlarged as the result of malignant disease in the true pelvis.

## DESCRIPTION OF LITHOGRAPH.

### Pelvis seen through Brim.

B, Uterus; Bl., Bladder; *Ov.*, Ovary; A, Primary Tumour; *C*, Inguinal Glands; *C''*, Sacral Lumbar Glands.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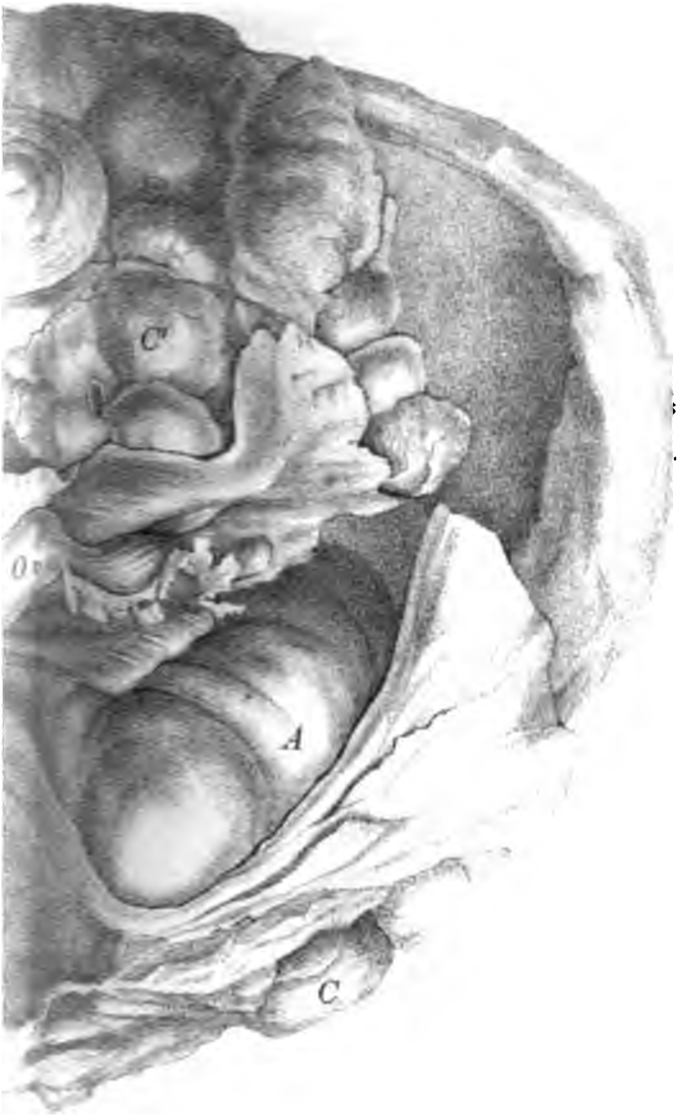

Drawn from nature & Printed by W. & A. K. Johnston, Edinburgh

# SOME LESSONS IN CONNECTION WITH THE PRACTICE OF SURGERY.

BY THOMAS ANNANDALE,

SENIOR SURGEON TO THE ROYAL INFIRMARY, AND REGIUS PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH.

(*Continued from page* 6.)

BEST *Anæsthetics, and their Administration.*—Chloroform and ether, or a mixture of both, are undoubtedly the best anæsthetics, as far as our present knowledge is concerned. Chloroform is the most generally applicable in surgical practice, its after-effects as regards sickness and depression are somewhat more than those of ether, but ether, on the other hand, is in many instances more irritating to the air-passages, and it is also unpleasant afterwards from the length of time its smell remains. My own practice is to use chloroform, except in the case of patients who have suffered much from the after-sickness of chloroform, or who have some special fear of chloroform, and prefer ether, then I use either pure ether or a mixture of ether and chloroform. In administering chloroform or ether I prefer the simple method employed in the Edinburgh school, which is to drop or pour some of the anæsthetic upon a folded towel, napkin, or handkerchief, to hold the towel or other cloth over the patient's face in such a way that pure air is inhaled along with the vapour of the anæsthetic, and to renew the anæsthetic from time to time as its vapour becomes exhausted. In the case of ether I adopt the same method, but use a thicker cloth, and pour the anæsthetic upon it more freely.

If this simple method is as safe and efficient as the employment of special apparatus or inhalers—and I am not aware that there is any proof to the contrary—I urge that the simple plan is the best, because it makes the administration of anæsthetics a proceeding which requires no special administrator or apparatus, but one which can be carried out by any educated practitioner, with means always at hand. All that I insist upon is, that the gentleman administering the anæsthetic should for the time devote his entire attention and observation to the proceeding.

The safest position for the patient is the horizontal one, the head being level with, or even slightly lower than the body. About three hours fasting before the administration is always advisable when it can be carried out, but a stimulant may, in certain cases already referred to, be given shortly before. It is well to remove from the mouth any false teeth, as I have seen such teeth become displaced, and, in one case, they had to be removed from the upper part of the pharynx. All tight portions of dress likely to interfere with free respiration should likewise be loosened or removed.

This very important question here suggests itself, namely, When and when not, should anæsthetics be employed? My own belief is that they may be used in *almost every case in which an operation or surgical* *manipulation is considered advisable.* I would not advise them to be given in cases of organic disease of the heart with defective lung action and congestion, or in marked lung congestion from other causes; nor would I urge their use in slight operations, especially in old or feeble patients.

A simple method of local anæsthesia, taught to me by an American friend, has proved useful in my practice in the case of slight operations such as the removal of a nail, or the extraction of a small foreign body. This method is to take a piece of ice, and having roughly shaped it so as to cover the part to be operated upon, to sprinkle its surface with salt, and then apply this surface to the skin for a minute or two. The part becomes temporarily frozen, and can be cut or otherwise interfered with without causing pain, if the operation is quickly performed. I have occasionally opened abscesses, and made other incisions without causing pain, with the aid of the "rapid breathing" method; that is, by causing the patient to breathe rapidly and steadily for a few minutes.

Another question may be considered: Is it possible by external examination or consideration of symptoms to ascertain positively that any person cannot with safety take anæsthetics? This question must, I think, in the present state of our knowledge, be answered in the negative; for the general experience of the majority of fatal "heart" accidents is that, although the heart had been carefully examined before the administration of the anæsthetic, no symptoms contra-indicating the use of it had been discovered.

*After-results of Anæsthetics.*—The most troublesome results which follow the administration of anæsthetics, and especially in the case of chloroform, are sickness, depression, and colic. Some people suffer from little or none of these symptoms, but in others they are severe, and cause much distress. No doubt, in some cases these results may be prevented or diminished by having the stomach prepared by fasting for a few hours; but even this is not always successful. I have sometimes found that small doses of morphia (fifteen or twenty minims of the solution of the muriate), given half-an-hour before the anæsthetic, are useful in preventing these symptoms. When these symptoms do occur, the most successful means for affording relief are small quantities of warm water or milk by the mouth, and counter-irritation or subcutaneous injection of morphia over the region of the stomach. If there is much depression, small doses of iced champagne, or of brandy and soda-water, may be used.

Has the employment of anæsthetics any special effect upon the blood, so as to interfere with the good progress of a patient after an operation? I do not think that we have any reliable facts which justify us in discussing this question; but I refer to it because I have heard an opinion expressed that in some cases the use of chloroform had an injurious effect in this way.

EDINBURGH CLINICAL JOURNAL.—Oct. 20, 1883.

# *REVIEWS.*

**Surgical Diagnosis.** By CHRISTOPHER HEATH, F.R.C.S., &c. &c. London: Churchill, 1883.

THE appearance of a second edition of this work would seem to imply that a want is felt by beginners in the study of surgery (for whom alone this book is avowedly written) for some help towards the diagnosis of surgical cases coming under their notice. How fully this want is supplied by the book before us is a question which the necessity for a second edition at first sight seems to answer satisfactorily. But there are other considerations to be borne in mind; the chief one being that there is at present no work on surgical diagnosis within reach of the student, which, within reasonable limits of space and expense, treats of the subject in a style comparable to that of the best works on medical diagnosis. Perhaps this is explained by the fact that the diagnosis of many surgical affections is plain and self-evident enough, even to a mere beginner; whereas doubts meet him on the very threshold of medical diagnosis. This state of matters doubtless greatly accounts for the meagre attention which is usually paid to the subject of surgical diagnosis; the student, being brought up in this creed, is too likely to forget that many surgical cases demand as scientific, as patient, and as searching an inquiry for their elucidation as do the most obscure medical affections. Surgical students are too prone to trust their unaided senses, and to despise the help of those side-winds of chemistry, electricity, physics, and the like, which they are taught to trust so implicitly in medicine.

Mr. Heath states in his preface that his desire is "to assist the student in the *recognition* of symptoms which he has learnt in lectures or in reading." To teach the recognition of symptoms is undoubtedly one great function of a work on diagnosis; but we must confess our inability to find much evidence that the author has kept this object in constant view.

His work seems to be a concise, and in parts even a scanty, *enumeration* (not description) of the salient symptoms of some of the commoner surgical diseases and injuries.

On page 2 the following statement, which appears to strike at the root of the matter, occurs:—"How to observe is an art to be obtained only by practice." From this view we must be allowed to differ. Practice, no doubt, enables us to recognise surely and quickly the true significance of symptoms; but *how* to observe *must* be carefully taught, either *viva voce* (and this is best) or by books; and we conceive it to be perhaps the first and most scientific object of such a treatise as the one before us to teach the student this very "how" of diagnosis. Let us illustrate what we mean by an example—stone in the bladder. The text-books enumerate such symptoms of the disease as hæmaturia, dysuria, &c.; but surely the function of a work on diagnosis addressed to the beginner is to tell him what hæmaturia and dysuria are, how to recognise them, and what they mean, and thus be to him the link between the patient and the text-book. In short, we believe that the chief object of a work on diagnosis, if it is wished to stimulate the student to thorough and healthy work, should be to describe carefully all methods of clinical investigation rather than to present a condensed table of symptoms—to be a book for work and not for cram.

The regional arrangement of the book before us, while it has disadvantages, possesses the merit of reminding the student of the chief affections which occur in various surgical regions, and is, we believe, to be preferred on the whole to the plan of doing it according to the various systems—*e.g.*, Integumentary, Osseous, Digestive, &c. It is at the best, however, a choice of evils.

Though there are few statements in the work with which one would absolutely disagree, still a beginner might be much misled if he trusted to the *unqualified* assertion that "in compression of the brain insensibility is complete, and cannot be roused by any stimulus," or that "in concussion no paralysis of limbs or bladder occurs," or again, that "in children scrotal hernia is not common."

It may serve to give an idea of the scope of the work if we point out a few of the most palpable omissions. No notice, for example, is taken of rheumatic affections of bones; nor of gelatinous disease of the elbow-joint; nor of obturator nor perineal hernia; nor of effusion into the sheaths of the extensor muscles of the thumb, as seen in washerwomen; nor of apoplexy as contrasted with fracture of skull; nor of fibrous tumours, hypertrophy, chronic induration, nor colloid tumour of the mamma; nor of irritable mamma; nor even of the different forms of stone in the bladder!

Considering that such a rare affection as that form of congenital tumour originating in the coccygeal gland of Luschka is described, one is at a loss to know why no notice has been taken of many very common affections, of which those we have instanced above are but a few examples.

It is to be regretted that such loose terms as "semi-fluctuating," "semi-malignant," "death from effusion," &c., are not expunged from medical literature.

While mention of clinical methods is exceedingly scanty (even such as posterior rhinoscopy, or the manual examination of the rectum being as a rule ignored), we cannot but think such descriptions as those of diphtheria, chronic cystitis, fracture and dislocation of the clavicle, so meagre as to be practically useless to the student.

In conclusion, though the book has many defects, they are almost entirely those of omission, and it shows many evidences of power and experience on the part of the writer. Such advice as is given as to the examination of patients will be found of real practical value; and it seems a matter of regret that the varied experience and resources of the author should have been so little drawn upon in this direction.

J. M. Cotterill.

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**How to Examine the Chest.** By Samuel West, M.D., M.R.C.P.
London: Churchill, 1883.

THIS is a very elementary introduction to physical examination of the chest. There is no attempt at explanation of the phenomena met with, and the facts pointed out are of the most rudimentary kind. The book is divided into sections, one dealing with examination of the lungs, another with the heart, and a third with the mediastinum. That dealing with the heart is the most complete, and the only part that will be of much value to the student. There are so many good and scientific works on the above subject that the present seems hardly intelligible, unless the author has found them from experience to be beyond the comprehension of the ordinary student. The diagrams in the work are numerous, and may serve some useful purpose.

Alex. Black.

# *REPORT ON SURGERY.*

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## *RECENT PAPERS.*

1. **Eve, F. S.**—On Cystic Tumours of the Jaws, and on the Etiology of Tumours. *British Medical Journal*, vol. i. (1883), pp. 1, 91, 241, 298.
2. **Hutchinson, Jonathan.**—Remarks on the Local Origin of Malignant Growths. *British Medical Journal*, vol. i. (1883), p. 708.
3. **Dunn, H. P.**—An Inquiry into the Causes of the Increase of Cancer. *British Medical Journal*, vol. i. (1883), p. 708.
4. **Maas.**—Ueber Fäulniss-Alcaloide. (On Septic Alkaloids.) *Arch. f. kl. Chirurgie*, vol. xxix. (1883), p. 531.
5. **Taylor, C. B.**—Transplantation of Skin en masse in the Treatment of Ectropion and other Deformities. *Practitioner*, vol. ii. (1883), p. 428.
6. **Hamilton, D. J.**—On the Condition of the Urethra and Neighbouring Parts in Acute Gonorrhœa. *Practitioner*, September, 1883.
7. **Treves, F.**—Entrance of Air into Veins during Operation. *British Medical Journal*, vol. i. (1883), p. 1278.

1. **Eve on Tumours.**—Although these lectures appeared in the earlier part of the year, they are so important as to merit a careful notice.

At the outset, Mr. Eve gives a careful and philosophical account of cystic tumours of the jaw. After an accurate description of the structure of their different forms, he shows how they may be looked upon as modifications of the enamel organ, or, at least, of the tendency of the gum epithelium to become involuted to form an enamel organ. The special forms of tumour, Mr. Eve associates with the different ages at which the pathological process takes place,—forming in fœtal life, a dentigerous cyst; in young adults, a multilocular cyst, non-malignant; and in older people, a tumour resembling cancer both in structure and clinical history, although still showing an unmistakable likeness to the rudimentary enamel organ. An elaborate discussion of many important points in the etiology of tumours is given in the second lecture, among which we may quote the following conclusion, which is, however, only to be taken generally: "In the majority of cases the origin of the innocent tumours corresponds to the periods of more active development, or, in some instances, of greatest functional activity in the particular organs; while the formation of malignant tumours tends to occur during the decline of developmental activity (in the sarcomata), or subsequently to the completion of development (in the cancers), and extends throughout succeeding years."

Arguments are next brought forward in favour of the hereditary transmission of malignant growths, but at the same time it is shown how this may still be consistent with the theory of their local origin. In following out the question of local causation of tumours, a most important *resumé* of our knowledge on this subject is offered to us, leaving little room for doubt of the great influence of local causes in malignant growths. In his lecture on the general character and relations of tumours, Mr. Eve recounts the experiments of Cohnheim, Zahn, Leopold, and others, as regards the transplantation of various tissues into adult animals. The results of these show that when the fully formed tissue from an adult animal is transplanted, it is merely absorbed; but that if tissues from very young animals be taken, or, if in an adult, from some of the growing parts, such as the periosteum or deeper layer of the epithelium, that a certain amount of growth does take place. When tissues from an embryo, on the other hand, are transplanted, a very considerable growth takes place, differing, however, in character from the growth of the embryonic tissue of a tumour in showing a capability of developing, *i.e.* cartilage into bone; in continuing the growth only for a limited time; and in the new growths being often re-absorbed after the maximum of growth has been attained. We are shown how experiments in the transplantation of tumours have hitherto failed to produce any permanent growths, although Mr. Eve considers that possibly future efforts in this direction may be more successful. He draws attention to the facility with which tumours are transplanted in the same individual by the transference of nuclei by lymphatics and by the blood-vessels, as well as by direct contact of the diseased surface with another part of the body.

After a concise statement of Cohnheim's views on the inclusion of permanently fœtal tissues as a cause of tumour formation, Mr. Eve proceeds to show the difficulties which prevent us from accepting this theory. These may be briefly summarised as follows:—(1) That in adults certain structures, such as gland and epithelial tissues, are constantly passing through embryonic stages, thus rendering the theory of fœtal inclusion unnecessary, and that these parts are the most frequent seat of tumour formations. (2) That in other parts of the body the embryonic condition of the tissues may be brought about by irritation to the part, as in the early callus thrown out at the ends of a broken bone, these tissues afterwards proceeding in their development as in the various stages of the reparative process. (3) That many seats of embryonic types of tumour are formed anew since the early period of embryonic life at which the fœtal inclusion is supposed to take place—*e.g.*, the ends of long bones. (4) That the elements of sarcomata of bone resemble the cells produced in the reparative process more than those of early fœtal bone, both in their microscopic appearance and in their subsequent mode of development into bone without the intermediate stage of fœtal cartilage. (5) That as regards the female breast at least, the inclusion of fœtal elements at as early a period as Cohnheim thinks necessary is inconceivable, as the rudiments of the gland only begin to appear at the fifth month of intra-uterine life. Mr. Eve asks, "If the rudiment of cancer be actually congenital, how is it that it does not develop under the physiological incitement of puberty?"

Lastly, Mr. Eve discusses the relations of different varieties of tumours to each other, and to malformation by excess. Starting with supernumerary digits, he quotes Professor Gegenbaur's conclusion that "a supernumerary digit in man must be considered a reduplication, the result of a tendency to variation;" he then draws attention to their occasional tendency to recur after removal, and after having recalled some instances of simple hypertrophy of the extremities, he compares these characters with similar manifestations in adenomata and sarcomata.

He next draws attention to the close analogy between adenomata and supernumerary glands, especially those found near the mammary and thyroid glands, with also glandular polypi of the rectum in children. Following out these adenomata, or simple tumours of epithelial type, he shows how they may be traced to pass into malignant tumours of the same type or cancers, by means of certain intermediate forms of doubtful character. Among connective tissue tumours "recurrent fibroids" are taken as the connecting link between simple fibrous tumours and the various forms of spindle and round-celled sarcomata.

In the same way bone tumours are traced from exostoses through diffuse osseous tumours to osteo-sarcomata. Mr. Eve repeats Sir James Paget's suggestion "that the different varieties of tumours may be produced by evolution and involution through hereditary transmission," and, in conclusion, makes some allusions to the subject of hereditary transmission.

2. **Hutchinson on the Local Causation of Malignant Growths.**—We have in this paper, which was read at the Worcester meeting of the British Medical Association, a thoughtful contribution to the local irritation view, including many points which have been noticed in Mr. Eve's lectures. In allusion to the nature of the tumour as influenced by its place of starting, it is pointed out that "if malignant action be originated on any part of the skin of the face—the ears, lips, mouth, and mucous membrane of the eye excepted—it will be of a kind which proceeds slowly, and always remains local, having no power to implicate either the lymphatics or the blood." This is then contrasted with the malignancy of growths beginning on the parts mentioned as exceptions. The latter part of the paper is taken up with arguments in favour of the local origin of malignant growths.

3. **Dunn on the Causes of the Increase of Cancer.**—Mr. Dunn points out that there has been in the last twenty years an increase of deaths from cancer greater than is to be accounted for by the increase of population. Thus, as stated in a leading article on the subject in the same journal, "the mortality rose progressively in the five quinquennial periods between 1850 and 1875, from 302 per 1,000,000 living in the first, to 443 per 1,000,000 living in the last. In 1875 the rate was 480 per 1,000,000 living."

This increase is stated to be due (*a*) "to the success attending the legislative measures and other means for the preservation of the infant population, by which a large proportion of persons reach adult age, and the general healthiness of the community is increased." We are reminded that cancer is most fatal in adult and commencing old age, and we might add that the increased number of adults who now survive are probably the weaker ones who would formerly have died off as infants. In discussing this question, however, Mr. Dunn does not seem to keep sufficiently in view a deduction from his own conclusion—*i.e.*, that we must compare the mortality from cancer in any year, with the infant mortality not of the same year, but of some thirty or forty years previously. (*b*) "To the greater predominance which in the present day prevails of the most predisposing causes of the disease, such as the fecundity of women, the prevalence of high nervous tension, and the existence of possibly greater general luxury in the mode of living."

He adds that the apparent immunity of certain districts may be accounted for by the greater prevalence of other causes of death, and disputes Dr. Haviland's conclusions as to the damp flooded districts giving a predisposition to the disease. C. W. CATHCART.

4. **Maas on Septic Alkaloids.**—In the research the results of which are recorded in this article, Maas followed the lines of the well-known experiments of Panum on the action of the chemical poison formed in the course of the putrefaction of animal tissues. Human muscle or brain removed from a cadaver was allowed to putrefy in small masses, at a constant temperature of 25° C., for twelve to forty-eight hours. At the end of this period the putrefying material was treated more than once with alcohol acidulated with tartaric acid. The extract so obtained was carefully filtered, and the alcohol driven off over a water-

bath. The resinous mass which remained was repeatedly washed with water acidulated with tartaric acid, and from this solution was obtained the tartaric salt of the septic alkaloids. From this solution ether extracts two alkaloids, one more and one less volatile, amyl-alcohol a third, and chloroform a fourth.

The more volatile of the two alkaloids separated by shaking with ether was obtained in such small quantity as to prevent its action being ascertained. The second was more oily in appearance, and when a watery solution was injected subcutaneously in rabbits, the animals became rapidly comatose, and remained so for a considerable time, ultimately, however, recovering.

The alkaloid obtained by extraction with amyl-alcohol appears to be specially poisonous. In frogs, when injected subcutaneously, it produces a condition closely resembling curara poisoning, but differing in that the animals react to stimuli for some time. In rabbits, there first occurs, after injection of the alkaloid, a series of convulsions, then coma sets in, dyspnœa, and death—the heart pulsating for some time after breathing has ceased. The action of the alkaloid was the same whether it was introduced under the skin, into the blood directly, or into the stomach.

From the material left after shaking with amyl-alcohol, chloroform will extract a fourth alkaloid, which closely resembles strychnine in its action.

J. GRAHAM BROWN.

5. **Taylor on Transplantation of Skin Flaps.**—The possibility of transplantation of skin flaps without a pedicle has already been shown by Dr. Wolfe and others. Dr. Wolfe insists on the removal of all the fatty portion of the new flap by clipping and shaving off the deeper layers of the skin, but Dr. Taylor advocates the application of the new skin flap to the raw surface without any further injury than is necessary in dissecting it from its bed. He has obtained better results in this way than when he followed Dr. Wolfe's plan.

C. W. CATHCART.

6. **Hamilton on the Condition of the Urethra and Neighbouring Parts in Acute Gonorrhœa.**—Professor Hamilton had the rare opportunity of examining the genital organs of a man who died in the Edinburgh Infirmary from an injury to the chest while suffering from acute gonorrhœa. He states that the mucous membrane of the urethra, except at its two extremities, when in its normal condition, consists, like the mucosa of a middle-sized bronchus, of three layers of cells; the deepest layer, of flattened endothelium-like cells; the intermediate layer, of pyriform cells, whose pointed extremity springs from the deepest layer; and a superficial layer, of columnar cells. The deepest layer is the source of the two upper strata. In acute gonorrhœa the deepest layer proliferates so rapidly that there is no time for the elaboration of the pyriform and columnar cells. This deepest stratum is everywhere present, its cells lose their flat shape, become rounded and granular, and their desquamation produces the pus cells of the urethral discharge. The absence of columnar cells in the discharge is thus accounted for. The scalding in micturition is explained by the removal of the protective covering of the urethral wall. The mucous glands also participate, there being an increase of the mucous secretion and of the epithelial cells, as in bronchitis.

The mucous membrane of the urethra differs from that of the bronchi in not possessing an elastic basement membrane; and it is interesting to learn whether in this case the cellular effusion is removed by the free surface or by the lymphatics. Professor Hamilton considers that, judging from a comparison of the size of the cells in the substance and of those on the surface of the mucosa, this removal by the free surface takes place to only a very limited extent, if at all; and that the arrangement of the cells in lines from the mucosa towards the corpus spongiosum seems to point to a removal by lymphatics.

The blood-vessels of the mucosa were not markedly congested or dilated.

The trabecular tissue of the spongy and cavernous bodies showed no change; but within the cavernous spaces there were masses of leucocytes, usually adherent to the wall of a space, and apparently formed during life. Some of the spaces were distended with blood.

Professor Hamilton considers that a stricture results because the contracting submucous tissue has no fixed external point to act from, as in the case of the chest; and that if the penis were more rigid, dilatation instead of stricture of the urethra would result.

The *testicles* showed similar superficial catarrhal appearances, and a similar absence of interstitial inflammation. The epithelium of the tubes was actively proliferating, cells which had become fatty, and even granular, having been thrown off in great numbers into the lumen, the resulting mass partially occluding the tube.

The epididymis showed similar but more advanced catarrhal appearances. The epithelium had desquamated in nearly every tube, and become extremely fatty, lying in most cases as a granular mass, more or less occluding the tube.

A. Bruce.

7. **Treves on Entrance of Air into the Veins.**—Mr. Treves gives an important paper on this subject. After pointing out many of the plans of treatment previously described, he indicates a very simple and effectual method of his own:—(1) To prevent further entrance of air, he fills the wound with fluid (clean water); this can be done without delay, and does not require the wounded vein to be discovered, while, as can be easily understood, it is at once effectual. (2) To remove the air already in the heart, he advocates compression of the thoracic walls during expiration, and finds that the bubbles of air thus pressed out form an important guide to the wounded vein. In two illustrative cases which he gives—one of a child aged two, the other of a man aged fifty,—not only was the entrance of air at once stopped, but in both cases a large quantity of air was pressed out of the heart by the method advocated. In both, the operations were continued without interruption after the veins were secured, and no bad results followed.

C. W. Cathcart.

# *REPORT ON OPHTHALMOLOGY.*

## *RECENT PAPERS.*

1. **Sattler, H.**—Ueber die Natur der Jequirity Ophthalmie. (On the Nature of Jequirity Ophthalmia.) *Klin. Monatsblätter für Augenheilkunde*, June, 1883, p. 207.
2. **Warlemont**
3. **De Wecker** } —On Jequirity. *Annales d'Oculistique*, March-April, 1883, p. 97 *seq.*
4. **Deneffe**
5. **De Wecker, L.**—De l'Emploi Clinique du Jequirity. (On the Clinical Use of Jequirity.) *Annales d'Oculistique*, May-June, 1883, p. 217.

6. **Brailey, W. A.**—On some Recent Methods of Treating Granular Lids. *British Medical Journal*, 19th May, 1883, p. 954.
7. **Emrys-Jones, A.**—The Effects of the Electric Light on the Eye. *Ophthalmic Review*, April, 1883, p. 106.
8. **Snell, S.**—Retinitis Caused by a Flash from a Sun-Reflector. *Ophthalmic Review*, May, 1883, p. 142.
9. **Swanzy, H. R.**—Two Cases of Central Amblyopia from Exposure to the Direct Rays of the Sun. *Ophthalmic Review*, May, 1883, p. 142.
10. **Little, D.** — The Effects of Strong Light upon the Eye. *Ophthalmic Review*, July, p. 196.

De Wecker brought under the notice of European opthalmologists last year (*Ann. d'Oculist*, July-August, 1882, p. 24) a method which, it seems, has long been in use in Brazil for the cure of that most intractable malady, granular conjunctivitis. It consists in the production in the diseased eye of a severe form of conjunctivitis, by the application to the conjunctiva of an infusion of the seeds of jequirity (*Abrus precatorius*, Nat. Ord. *Leguminosæ*).

1. **Sattler's Paper** "On the Nature of Jequirity Ophthalmia," describes a series of experiments he undertook at the suggestion of De Wecker, to test the latter's theory that the cause of this inflammation is a vegetable organism. It is of very special interest, for it seems to suggest a whole series of new problems regarding the relations of micro-organisms to disease. An infusion (½-1 per cent.) of the peeled and pounded seeds of jequirity, allowed to stand for twenty-four hours at ordinary temperatures and then filtered, produces, when applied to the normal human conjunctiva, the following results :—The application is painless; after about three hours its effects begin to appear, and after sixteen hours severe inflammation is present. The lids are hot, swollen, hard, and tender; the conjunctiva of the lids is covered with a thick, adherent, greyish-yellow membrane; the rest of the conjunctiva is much swollen, and a thinner membrane covers the folds; the lymphatic gland in front of the ear is enlarged; the patient is restless, with a temperature often above 38° C.; twelve to sixteen hours later, the inflammation is at its height, with an abundant purulent secretion; after another day, it begins to subside. The formation of membrane on the lids ceases five or six days after the application, on the folds not till a few days later. It is some weeks before the conjunctiva regains its normal condition. There is sometimes cloudiness and superficial ulceration of the cornea, without more serious results, when only a single application is made. The intensity of the inflammation can be increased by using the infusion more than once, at one and a-half to two hours' intervals. In rabbits, with which most of Sattler's experiments were made, it is more severe than in man. The infusion, if allowed to stand for three to six hours only, or if incubated at 33°-35° C., is less active; if stronger than 1 per cent., more active, but not in proportion to its concentration. No chemical substance could be found in the seeds which produced anything like the effect of the fresh infusion. On microscopic examination, however, Sattler found constantly present in great abundance a peculiar form of bacillus, which multiplies rapidly, and forms a pellicle on the surface of the infusion, distinguishable even by the naked eye from that of other bacilli. Spores are formed, some singly or in pairs in the substance of the rods, some in chains. Incubation at 36° C. delays, and at somewhat higher temperature prevents, the development of the bacillus. A temperature of

0° C. suspends temporarily its activity. The dried spores retain their vitality even after exposure for five minutes to 110° C. If sealed up in a flask, the infusion develops merely the organisms commonly found in putrefying fluids; but if it be again exposed to the air before putrefaction has gone too far, the specific bacillus appears. The secretion from an affected eye contains the same organism, but never in such abundance as the fresh infusion; and when applied to a healthy eye, produces a similar, but slighter, inflammation. The bacillus is more plentiful in the membrane which coats the conjunctiva than in the secretion.

Prepared with suitable precautions, the infusion could be kept for a week in a flask closed with cotton wool without developing organisms; but it still produced a pretty severe conjunctivitis. This anomalous result Sattler explains by supposing that germs lodge and develop in the fluid lying in the conjunctival sac. He was better satisfied with the results obtained by injection through the lid into the tissues beneath the conjunctiva. The fluids thus used were—(1) distilled water; (2) meat infusion; (3) a crop of bacillus subtilis; (4) jequirity infusion free from organisms; (5) ordinary jequirity infusion; (6) a pure crop of the specific bacillus. The first four produced merely a temporary swelling; the last two a cheesy abscess, containing the characteristic organism in abundance. Various nutritive fluids inoculated with the jequirity infusion produced crops of the specific bacillus; gelatinised blood-serum and meat-extract were the best. Such crops produced a less severe conjunctivitis than the fresh infusion, but with exactly the same peculiarities. Numerous experiments with plant-infusions and other organic liquids failed to produce a similar inflammation without jequirity infusion as the first link. In 1 per cent. pea infusion a bacillus was found very similar to that of jequirity infusion; but it only occasionally caused conjunctivitis, and that very slight and evanescent. That the organism is not developed from spores present in the jequirity seeds seems to be proved by the possibility of keeping free from organisms, as above described, an infusion which develops the specific bacillus on exposure to unfiltered air. Sattler concludes that a bacillus, whose spores are commonly present in the atmosphere, acquires by growing in jequirity infusion a new property—the power of producing a severe and peculiar form of conjunctivitis. If his experiments be confirmed by others, this conclusion seems inevitable. A new disease, and one capable of indefinite propagation, appears to be producible at will by a suitable arrangement of conditions. Can there be a similar relation between atmospheric germs and other peculiar nutritive media? Is the question of the origination *de novo* of infectious diseases to be separated from that of spontaneous generation?

5. **De Wecker's "Clinical Use of Jequirity"** gives his further experience of the drug. He uses in general a 5 per cent. infusion, applied twice or thrice daily to the conjunctiva till the requisite degree of inflammation is produced. Since his first paper on the subject was published he has been confirmed in his favourable opinion of this treatment, and concludes (1) that jequirity produces a sort of croupous inflammation, the intensity of which can be regulated by the number and strength of the applications; (2) that if not carried too far this treatment is free from danger to the cornea; (3) that it cures granular conjunctivitis comparatively rapidly. He reports several severe cases of this disease in which after years of suffering, and months or even years of various but ineffectual treatment, a cure was effected in from two to eight weeks by the use of the jequirity infusion.

Defining more precisely the indications for the use of jequirity, De

Wecker states that it can be applied not only to cases of granular conjunctivitis suitable for inoculation, but to many where that treatment is dangerous because the cornea is ulcerated, or the disease is not very severe, or affects only one eye. Chronic purulent conjunctivitis, on the other hand, is aggravated by jequirity. He finds it useful also in some cases of infiltration or ulceration of the cornea and of phlyctenular disease; but is not yet prepared to recommend it in preference to other methods of treatment in these conditions.

6. **Brailey** also records three cases of granular conjunctivitis which were distinctly improved, though not cured, by this treatment. In each mitigated nitrate of silver stick had been previously used for two months with slight benefit. Corneal opacity, pain, and photophobia in particular were favourably influenced.

4. **Deneffe,** on the other hand, had very unsatisfactory experience of the new drug. He used infusions of 2 per cent. and 6 per cent., prepared and applied according to De Wecker's directions. The applications were usually followed by a severe inflammation resembling purulent conjunctivitis; but sometimes the effect was slight, or even absent altogether. As to its therapeutic value, he saw no good result whatever. Neither granulations nor corneal opacities improved in the slightest degree; and in some cases the condition present was aggravated. In his opinion the new treatment cannot bear comparison with that by inoculation from purulent conjunctivitis, of which he has had large experience at Ghent.

Numerous other notices of jequirity have appeared since De Wecker's first paper was published. Most who have tried it have obtained some benefit; though not so constantly as De Wecker. The treatment must be regarded as still on its trial; but there seems to be every prospect that it will really prove valuable.

**7-10.** Such observations as those here recorded have acquired new importance since the electric light has come so largely into use. Little (10) records a case of retinitis, and Emrys-Jones (7) two cases of pain and photophobia, of short duration, though severe, caused by incautious exposure of the naked eye to the electric arc in the course of experiments with it. The description of Emrys-Jones' cases reminds one of the photophobia so often seen in strumous children, severe out of all proportion to the injection or other morbid appearances to be seen in the eyes. Obviously none exposed to this danger should neglect to protect themselves by the use of dark spectacles.

R. A. Lundie.

## *REPORT ON OTOLOGY.*

### *RECENT PAPERS.*

1. **Burkner** — Beiträge zur Statistik der Ohrenkrankheiten. (On the Statistics of Ear Disease.) *Archiv. f. Ohrenheilkunde,* Bd. xx. Heft 2.
2. **Zuckerkandl** — Zur Morphologie des Musculus Tensor Tympani, (On the Morphology of the Tensor Tympani.) *Archiv. f. Ohrenheilkunde.* Bd. xx. Heft 2.
3. **Hessler** — Beitrag zur Pathologie und Therapie der Perforationen der Shrapnell'schen Membran. (On the Pathology and Treatment of Perforation of Shrapnell's Membrane.) *Archiv. f. Ohrenheilkunde,* Bd. xx. Heft 2.

4. **Gruber** — BEITRAG ZUR CASUISTIK DER DURCHSCHNEIDUNG DES TROMMELFELLSPANNERS. (On Section of the Tensor Tympani.) *Monatsschrift für Ohrenheilkunde sowie für Kehlkopf, &c., Krankheiten*, Juli, 1883.

5. **Bezold** — DIE VERSCHLIESSUNG DER TUBA EUSTACHII, &c. (On Occlusion of the Eustachian Tube.) *Berliner klinische Wochenschrift*, 3rd September, 1883.

1. **Burkner on the Statistics of Ear Disease.**—In this paper the author has collected from a large number of sources statistics on the subject of ear disease, and draws from his researches the following conclusions:—

(1.) The commonest causes of ear mischief are cold, affections of the naso-pharynx, and acute infectious diseases.

(2.) The tendency to ear disease increases from birth up to the age of forty, and then diminishes.

(3.) Men are more liable to be attacked than women, the ratio being as 3 to 2.

(4.) The external ear is involved in about 25 per cent. of cases, the middle ear in 67 per cent., and the labyrinth in 8 per cent.

(5.) The left ear is more liable to be affected than the right, the proportion being 5 to 4.

(6.) Acute disease of the middle ear is less common in summer and autumn than in spring and winter.

(7.) Of all forms of ear disease treated by the authors from whom the statistics have been compiled, 53 per cent. were cured, 30 per cent. improved, 7 per cent. were incurable; while the death-rate was represented by 3 per cent.

Dr. Bürkner gives in a tabular form the results of treatment by various authorities, and in looking over these it is extremely difficult to understand and explain some of the facts, except on the hypothesis that the types of ear disease met with in some parts of Germany are of a kind peculiarly amenable to treatment. Thus V. Tröltsch is reported out of 254 patients to have cured 130, improved 78, while of the whole number only 5 were not benefited by treatment, and 41 disappeared from observation. On the other hand, Roosa, out of 993 patients, cured only 217, relieved 302, dismissed 235 as incurable, while 232 disappeared from observation. Again, in the table of results in the treatment of chronic non-suppurative inflammation of the middle ear, we find that Roosa only succeeded in curing 4·4, while he benefited 31·1 per cent. of his cases. Bürkner, on the other hand, cured 28·5 and relieved 39·5 per cent. of his patients, a large number of whom, however, were children.

No one who knows Dr. Roosa or his writings will ascribe these disparities to want of knowledge or skill, and we believe that his results will be found to tally more nearly with those of British and American aurists than will those of some of his German contemporaries.

2. **Zuckerkandl on the Morphology of the Tensor Tympani.**—In this interesting paper Professor Zuckerkandl brings forward some very instructive and original observations on the morphology of the tensor tympani. We regret that the paper is not one which could be given, even in abstract form, without taking up more space than is at our disposal in this number.

3. **Hessler on Perforation of Shrapnell's Membrane.**—Dr. Hessler, after giving the history and results of treatment in a number of cases in which this

lesion existed, draws from these data some generalisations as to the pathology and treatment of perforations in Shrapnell's membrane.

Before referring to these, it may be well to mention that the small portion of the drum membrane (Shrapnell's membrane) which lies above the short process of the malleus, forms the boundary of a sub-division, as it were, of the tympanum. This cavity is bounded besides by the upper wall of the meatus and the head of the malleus. According to Politzer, it is again sub-divided by connective tissue into spaces, some of which communicated with the drum, while others are completely shut off from it. Morpurgo, on the other hand, believes that no part of the original cavity is quite separated from the tympanum.

Hessler divides cases of chronic middle-ear suppuration in which perforation of Shrapnell's membrane has occurred into two classes—viz., (1) those in which air can be driven through the perforation by way of the Eustachian tube; (2) those in which no communication exists between the perforation and the tympanum.

In a number of cases he found that the head of the malleus, and even the adjacent wall of the meatus, were carious. His treatment consists in cleansing the cavity, destroying diseased bone by means of caustic or galvano-cautery where practicable; and this failing, he scrapes the meatus with a sharp spoon, while in one case he removed the malleus, which from its mobility is unsuited for such treatment. In the second class of cases, he also recommends that an opening be made through Shrapnell's membrane, extending downwards through the membrane proper, thus uniting the small upper cavity with that of the tympanum; where, on the other hand, an internal communication already exists, he sometimes makes a counter opening lower down. In such a *resumé* as the space at our disposal admits of, full justice cannot be done to a paper which, in the original, occupies twenty-eight pages, and is full of new matter.

Whether aurists generally will follow the author in his somewhat heroic methods of treatment is open to doubt. At the same time, the subject is one which deserves the attention of those members of the profession who are devoting themselves to the study of ear disease. In some of the cases recorded, we should have felt inclined to try the effects of mineral acids upon the diseased bone before resorting to operative interference.

4. **Gruber on Section of the Tensor Tympani.**—In this paper Professor Gruber records the history of a case in which he performed tenotomy of the tensor tympani. The patient complained of giddiness, trembling, and deafness. After the operation the two first-named symptoms disappeared, while a watch heard in contact only before, was audible at a distance of 22 cm.

Before tenotomy was resorted to, treatment through the Eustachian tube was tried, and failed to ameliorate the condition. Owing to narrowness of the meatus the tenatome was entered behind the malleus. It would be interesting to know whether, in severing the tendon, the posterior fold of the indrawn membrane was also incised, as in similar cases this alone has been known to effect improvement.

5. **Bezold on Eustachian Obstruction.**—This paper was evidently written for the general practitioner, and not as an original contribution to otology. The only point of interest to the specialist is the assertion that deafness in Eustachian obstruction is due only to the rarefaction of the intra-tympanic air supply, and not to the changed position of the membrane.

P. M'Bride.

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## *ORIGINAL ARTICLE.*

# AIX-LES-BAINS IN THE TREATMENT OF RHEUMATISM, WITH A SUGGESTION FOR ITS FURTHER IMPROVEMENT.

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HAVING had, during the past summer, exceptional opportunities of witnessing the effects of the treatment pursued at Aix-les-Bains in cases of rheumatism, I purpose to devote the remainder of this lecture to giving you some account of the very valuable results attained by the use of its mineral waters, and offering a suggestion which, if adopted, might, I think, add something even to their efficiency.

Aix is situated in that beautiful region of France where the ground is rising towards the lofty Alpine ranges. It is on the direct route from Paris to Italy by Mont Cenis, and lies in a valley 800 feet above the sea level. Close to it is the Lac de Bourget, which is rendered classical by the writings of Lamartine. In its vicinity are many places of historic interest, and of extraordinary beauty. By boat or steamer one may explore the lake, with its monastery and ancient castles—one of them the earliest seat of the Dukes of Savoy, who have now risen to the throne of Italy,—and may pass on to its communication with the Rhone. I know no lovelier excursion than this. With little effort one may climb the beautiful road over the shoulder of the Dent du Chat, by which Louis Napoleon led his troops to the campaign against Austria. It is a short excursion to the village and lake of Annecy, which surpasses Aix itself and its lake in beauty and historic interest. In a single day one may visit Chambery, and explore the rocky defiles, dark woods, and sunny meadows round the Grande Chartreuse. You thus perceive that Aix is a place easily reached, and that it possesses many natural attractions; but with these advantages it must be admitted that it often proves trying to healthy people who resort to it. Its air seems to be powerful for good or evil.

Aix was a famous health resort in the days of the Romans. One of the emperors, Gratian, beautified the neighbourhood, and built baths; and the wealthy citizens crowded to it from north and south. Many traces of its grandeur in the olden times are still to be seen in archway, temple, and bath. All through the centuries since it has enjoyed a reputation, and within the past hundred and fifty years it has attained to extraordinary popularity. It is now the resort of between 20,000 and 30,000 people every year. Its season commences in the end of April, and lasts until the beginning of October. The British visitors go early or late in the season. The French and Italians visit it during the hot months, when to the inhabitants of colder climates its heat would be almost intolerable.

The waters proceed from two sources,—one known as the sulphur, the other as the alum spring. The former owes its name to the sulphuretted hydrogen which it contains, the latter to an erroneous notion that it contained alum. Both of them are hot, the one being 113°, the other 115° F. These waters are applied in many ways,—as vapour baths, by inhalation, but chiefly in the way of douches. The patient, often so cripple with rheumatism as to be unable to walk to the baths, is carried in a kind of curtained sedan-chair, closely resembling the old Infirmary chair which used to be a familiar object in the neighbourhood of the College in my student days. Stalwart porters carry the patients from the hotel to the baths, and from the baths to the hotel, hour after hour and day after day; and they make no difficulty about carrying the most portly of our countrymen or the stoutest of French ladies. Having reached the establishment, the medical adviser—and one may choose among four-and-twenty who practise in the village and at the baths—gives directions, and often accompanies the patient to the bath-room. These rooms are chambers about twelve feet square, and in the middle of the stone floor there is a trough or hollow, with various wooden implements, and numerous contrivances for applying the water. The atmosphere is loaded with vapour, and smells strongly of sulphuretted hydrogen. Two vigorous bathmen, muscular as Indian bearers, and in such a costume as affords unrivalled opportunities for observing their muscular development, receive the patient, and proceed to carry out the doctor's orders. The patient is seated on a low wooden stool, and a stream of water, as warm as he can comfortably bear, is directed upon his legs. Another stream, somewhat cooler, and of less volume, is made to play on the shoulders and on the back of his neck. The chief bathman rests the nozzle of his hose upon one thigh, and directs the stream in succession to different parts of the legs, while he manipulates and shampoos in regular order from the toes upwards, kneading and rubbing the muscles, and making passive movements of the joints, so as to overcome stiffness. The second bathman is meantime working at the shoulders and arms; and thus, while the water is pouring in torrents over the body, the athletic attendants are putting forth their strength upon the thickened and stiffened joints. The chief bathman then takes the arms in hand, while the stream of hot water is made to play constantly upon the feet; and he moves each joint time after time, getting the limb a little farther with each successive effort. "Oh!" shouts the patient. "Nous arriverons," replies the bathman; and, encouraged by the doctor, they tug, and stretch, and jerk till, little by little, the fibrous thickening yields, and the joint once more becomes mobile.

It is astonishing with what skill, what patience, tenderness, and firmness the shampooing and passive movements are performed. When every joint has been moved to the utmost extent possible, the patient is made to stand, while from a distance a powerful stream of water is propelled upon the different limbs, especially about the articulations chiefly affected. According to circumstances, he may have warm water to the last, or he may have a cool or even a cold douche or perhaps a good cold shower-bath, which in Aix is known, whether in compliment to our climate or for some better reason, as the *Douche Ecossaise*. When the bath is over, the patient is rapidly dried wrapped in flannel sheets and blankets, and is carried back to his hotel in the curious sedan-chair to which I have already referred. Having reached his apartment, he is lifted into bed, still swathed like a mummy, is covered up with additional blankets and a quilt, and left to perspire for a longer or shorter period. After twenty minutes or half-an-hour, he is carefully rubbed down by an attendant, who had accompanied him to the bath. If the case be less severe, or the patient feeble, he may not be subjected to this post-balneal bed perspiration.

As an occasional variety, instead of having the douche, the patient is sent to have a steam bath—the Berthollet, as it is termed in Aix. He enters an apartment which contains a curious wooden box, with a round hole in its movable lid. After undressing, he steps into the wooden box, and finds that he is shut in all except the head, the round hole being occupied by his neck. Immediately a valve on the level of the floor is opened, the hot vapour rises about him, and he soon begins to perspire freely. The perspiration running from his brow, trickles down his face. Presently he feels the streams flowing down his sides and his legs, and very speedily a feeling of oppression and debility comes on, and after ten or twenty minutes the bath is opened up, the patient is carefully dried and removed to his hotel.

Sometimes on the same day as a douche, and sometimes as the sole treatment, the patient gets a local vapour bath. By ingenious contrivances the bathman is enabled to steam one arm or one leg. Speedily the limb begins to perspire, and the parts become soft and comparatively flexible. Perspiration occurs all over the body, especially in those who have been undergoing other forms of treatment, and so great care requires to be taken to prevent a chill. But the patients often sit and read while one arm or leg is exposed to the vapour. When the parts have been thoroughly softened, manipulation, shampooing, and passive movements of joints are carefully carried out just as after the douche, but only confined to the one limb.

On certain days the patient is sent to the spacious and comfortable swimming baths, and there he is allowed to disport himself for a longer or shorter time, practising amid the somewhat warm water active movements of his limbs. As his joints relax, he may find that he can cross the bath in ten strokes, instead of the fifteen that were originally necessary, and that he can continue the exercise much longer than he could at first. When his swim is ended—and swimming in warm water is rather enervating—he may have a cold douche or not according to the directions of the doctor. He is rapidly dried, and if well enough, is directed to walk about smartly in the gardens, which are close to the establishment.

The internal use of the waters is comparatively unimportant, the chief reliance of the doctors being manifestly placed in the baths. Still, most patients are enjoined to drink a little from one of the springs every day, and some effect upon the mucous membranes of the alimentary and urinary tracts is said to be produced.

The treatment which I have thus described is of extraordinary value in various rheumatic conditions. *First,* it is of great service in the way of removing the thickness and stiffness which so often remain after attacks of acute rheumatism,—a stiffness due partly to changes within the joint, but mainly to thickening of the fibrous tissues around the articulation. *Second,* in cases of chronic rheumatism, where a slow inflammatory action is going on in and around the joints, it suffices both to remove inflammatory products and to diminish the tendency to rheumatic inflammation. *Third,* in rheumatic affections of the muscles, fasciæ, and nerve sheaths, it affords in many cases the most decided and speedy relief. *Fourth,* in the wasting of muscles, which so often occurs in connection with rheumatic processes, the manipulation and shampooing, along with the electrical stimulation which the doctors superadd, generally prove distinctly serviceable; and *Fifth,* on the occurrence of slight rheumatic threatenings, it appears that the use of the Berthollet, or vapour bath, often suffices to prevent the further development of the disease.

I say nothing at present of the many other affections of the locomotory system, of the respiratory tract, and other parts, in which these waters are found good.

The question then arises, How is it that Aix-les-Bains is so eminently serviceable in rheumatic conditions? How is it that so many people each year go to it crippled and stiff, and leave it strong and lithe, or become so soon after they have left it? The facts are incontestable. The explanation is somewhat difficult. Doubtless many factors have a part in it. There is, first, the climate. Its warmth favours the action of the skin, and renders rheumatic people less liable to chills. Possibly there is some special peculiarity of the atmosphere, one of these occult peculiarities which many people can recognise, but which we are at present unable to account for. Certainly there is a quality in the air which is to some people potent for evil, perhaps to certain invalids it is equally potent for good. The value of the internal administration of the water does not seem to be great. We have already seen that it is comparatively little used. The outward application cannot be supposed to owe much to the chemical ingredients in the water, for the sulphur spring contains little more than three grains of salts in the sixteen ounces, with a small quantity of carbonic acid and sulphuretted hydrogen gas, while the alum spring has almost the same composition, but without the sulphuretted hydrogen. Clearly, then, the temperature must be the chief element of usefulness. It varies very little, getting only slightly cooler after heavy rains. The abundance of the supply of water is also of no little importance.

It flows on constantly. There is no need of reservoirs for accumulation. It can be freely lavished on all who come. It should also be mentioned that the water feels soft and pleasant to the skin; is never harsh and irritating. Ranking next to the water is undoubtedly the manipulative skill of the bathmen and bathwomen. The office passes from father to son, from mother to daughter, each new aspirant serving a long apprenticeship as assistant to the senior. The elder instructs the younger in all the niceties of manipulation, until at last he has developed such a capacity as to be fit for the chief charge.

The kindness and skill of the doctors at Aix cannot be too highly praised, and the generous hospitality accorded to our profession, to the clergy, and to the poor, is most creditable to those entrusted with the management of the establishment. For myself, I can never forget the kindness which I experienced at the hands of Dr. Brachet, and the skill with which he guided me so as to get the utmost benefit from the baths. Every effort is made to render the little town attractive to the visitors. The public gardens are very beautiful, often enlivened by music and promenades, and full of the songs of nightingales and other birds. There is a club-house, at which the papers of all countries may be seen, and in which concerts and amusements of all kinds are to be had, eminent singers and instrumentalists being collected during the season from Paris, from Italy, and the Riviera.

Turning now to the question of how this very valuable institution might be improved, I shall venture to make two suggestions, one which I shall dismiss in a word, and another which I shall treat more in detail. The visitors live, for the most part, *en pension* in the large, well-appointed hotels. The meals provided are the early coffee with bread and butter, the dejeuner a la fourchette at about twelve, and the dinner at about six or seven. In some places the bill of fare shows a luxuriousness which is bad for rheumatic patients, and still worse for the gouty; and in other places there is a pseudo-luxuriousness which is alike unsatisfying to the system and injurious to the stomach. If I had the responsibility of treating the patients who resort to Aix, I should make a vigorous attempt to introduce a more simple and more wholesome dietary, and I think one might confidently look for better and more speedy results if this could be carried out.

The other suggestion strikes me as being of considerable importance, and I should desire to see it acted upon as soon as possible. It is, that an establishment, on the model of that originally introduced at Stockholm, by Dr. Zander, should be founded in Aix. Early in the present century, Ling drew attention to the value of passive movement and frictions in the treatment of many diseases. He distinguished two classes of movements—the active and the passive. In the former, the patient used his muscles and moved his joints in opposition to the resistance made by a carefully trained attendant, or the patient himself resisted movements which the attendant made. In the latter were included the manipulation, friction, and kneading of skin and muscles, which are at present grouped under the name of *massage*, and have proved so useful in the hands of Weir Mitchell, Playfair, and others. From what I have said, you will perceive that the advantages of Ling's method are to be fully enjoyed in Aix. No attendants could be found in the world more skilled in massage, or in the performance of passive movements of the joints, than those attached to the establishment in Aix. But Dr. Zander made a distinct advance upon the old methods, when he invented a series of appliances by means of which any joint may be moved, any group of muscles brought into play, and any part of the body manipulated with the most perfect accuracy. He recognised the fact that it takes long training to produce a skilled manipulator, and that the best manipulator gets tired when he has to work at patient after patient for hours together.

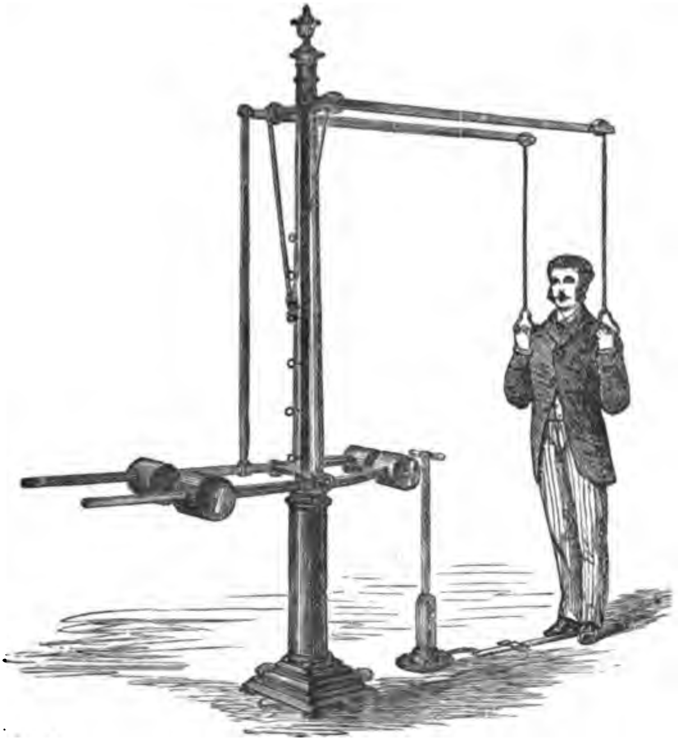
FIG. 1.

When you come to treat rheumatic and post-rheumatic conditions, you will find that there are two elements with which you have chiefly to deal. There is, first, the stiffness of the joint and the thickening of the fibrous tissues around it; and, secondly, the enfeeblement of the muscles which have been disused in consequence of the joint affection. Now, I find that Zander's machines are capable, on the one hand, of producing passive movements of the joints, and on the other, of developing and cultivating the power in muscles, aiding the feeble effort of which the muscle is capable, and thereby gradually restoring its strength.

Let me explain the kind of contrivance by which these results are effected. The machines are, for the most part, constructed on the weight and lever principle, the levers varying in length from 2 ft. 6 in. to 4 ft. 6 in., and the weight also in amount according to the strength of the group of muscles for which it is intended. The weight is pierced by the lever, and is freely movable along its whole length, but can be fixed by means of a screw at any required point. The weights are so adjustable that a child can use the machines with a small amount of effort, whereas, when the weight is at its greatest, it is fair work for a strong man.

You will be best able to understand the working of these instruments if I select for description those fitted for one individual joint. I shall select the shoulder-joint. You will find that many rheumatic patients who have long been confined to bed recover with the shoulders more stiffened than any other articulation, probably because most of the other joints are more likely to be brought into play when the patient is in the recumbent position. You will find that some get stiff for all movements, others for movement in some particular direction. Dr. Zander devised a machine which is useful for *vertical flexion and extension* of the shoulder-joint (Fig. 1). It consists of a pillar to which are attached levers with weights. These levers are connected with rods, ropes, and handles. If the patient be made to grasp the handles, and then the levers are set free to act under the influence of the weight, the arms are pulled upwards and the joints are unlocked. This is purely passive movement. On the other hand, the patient grasping the handles and pulling upon them will not only make movement of the joint, but will develop the muscular fibres of the latissimus dorsi, teres, lower fibres of trapezius, posterior fibres of deltoid, sub-scapularis, and other muscles.

Another machine (Fig. 2) is arranged so that the patient while sitting can have one arm moved upwards and can bring the same group of muscles that I have alluded to into play. In this instrument there is an upright pillar and an arrangement of wheels and lever whereby the scapula and trunk being fixed, the arm may be passively raised into the vertical position, or, on the other hand, may be brought down by muscular effort to the side.

The muscular fibres of the deltoid may be brought into play and developed by means of an instrument with a transverse bar-handle connected with a lever and weight. The effort of raising this weight brings the deltoid and other muscles into play.

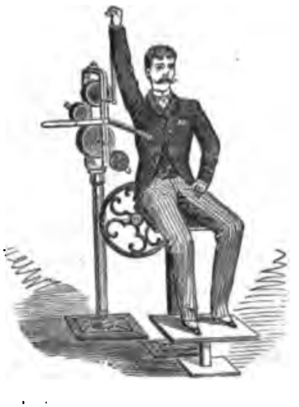

FIG. 2.

For *horizontal flexion and extension* of the shoulder-joints there is an instrument in which the patient is seated, the shoulders and axillæ firmly supported, the arms rest upon and the hands grasp long bars, connected with which there are levers and weights. Passive extension of the joints may be effected when the two bars are brought together in the front and allowed to swing rapidly back by the weight of the lever, while the muscular effort to bring the bars forward from being in a line with the body to being at a right-angle to it, develops the pectoral muscles and the anterior fibres of the deltoid. A closely similar arrangement suffices to produce the other action, the natural position of the bars being at a right-angle to the body, the instrument when used for passive movement bringing the arms into this position, the active effort bringing them back to a line with the body or farther, and bringing into play the supra- and infra-spinatus, the posterior fibres of the deltoid, the latissimus dorsi, the rhomboidei, and other muscles.

*Rotation* of the joint is effected by a simple arrangement. The patient grasps a handle and turns it round by pronation or supination, but the weight carries on the movement, so that the head of the humerus is rotated in the glenoid cavity. The apparatus for vertical flexion and extension also produces a degree of rotation.

But perhaps the best instrument of all is that for *circumduction* of the shoulder-joint (fig. 3). The patient is seated, and the axilla is fixed by a firm padded support. The arm lies along a bar, which is grasped near its extremity by the hand. This is connected with a lever which is attached to an upright pillar, and has a weight, movable in the usual way, on the other side of the pillar attachment. As the lever, with its weight, is made to revolve, the shoulder is passively circumducted, while active circumduction is effected by the patient moving the bar which is grasped by the hand. The cone of circumduction may be increased as the joint becomes less stiff, and, of course, the length of the rod is sufficient for the extreme normal movement of a long arm.

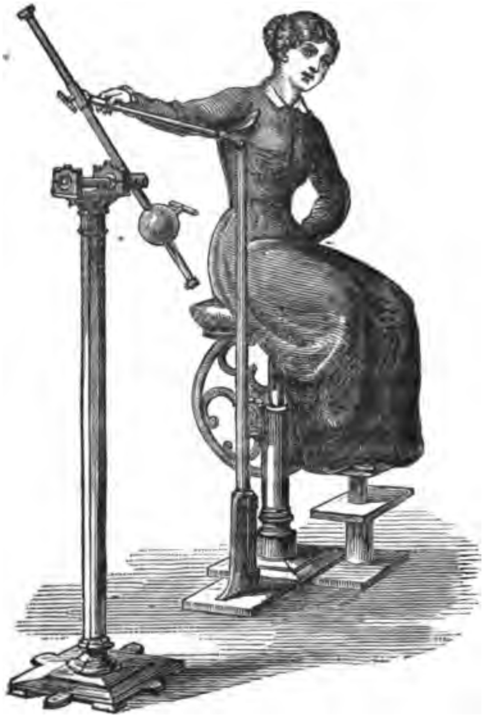

Fig. 3.

When I tell you that there are arrangements as complete for every joint in the body as those which I have described for the shoulder-joint, you will perceive that Dr. Zander has succeeded in producing a most complete set of appliances; and I think it will be at once apparent that he has provided us with a very important means of treating rheumatic patients. The benefit, of course, is by no means confined to such cases; for in many nervous diseases, surgical injuries, and in cases of mere debility, it is of the utmost value.

In Stockholm, Zander's Institution is resorted to by immense numbers of people, and the admirably equipped Gymnasium which was lately established in Soho Square, London, is attaining to great popularity. It is likely, in my judgment, to be the first of many institutions of the kind which will be established throughout the country. Were the authorities in Aix-les-Bains to found and develop this Swedish system of treatment, I have no doubt that the results obtained in this great health resort would be even more satisfactory than they have hitherto been. I do not suggest that the present system of bathing and manipulation should be in any degree superseded, but only that the gymnastic exercises should be added to the other means of treatment. I believe that in the cases which are enjoying the advantage of the thermal treatment at Aix the results of the gymnasium would be far more satisfactory than they are under ordinary conditions. I hope to see the day when, not at Aix-les-Bains alone, but at Aix-la-Chapelle, at Vichy, at Carlsbad, at Buxton, at Droitwich, at Harrogate, at Strathpeffer, and at Bath—which last is happily again coming into favour, as it well deserves—there shall be Zander Institutions as adjuncts to the curative agencies so liberally supplied by nature.

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## *CORRESPONDENCE.*

*To the Editors of "The Edinburgh Clinical and Pathological Journal."*

Edinburgh, 20*th October*, 1883.

Gentlemen,—As one of the oldest surviving graduates in the University of Edinburgh, and an emeritus teacher in her medical school, I cannot but watch with interest its growth and progress. I believe the one to be a consequence of the other, and that the large number of students who now resort to Edinburgh are induced to do so from the fame of her teachers within, and without the University.

I regret much to have observed that this eminent success of Edinburgh seems to have provoked the jealousy of some of the medical schools south of the Tweed.

The introduction of the Medical Bill in the last session of Parliament gave scope for the display of a good deal of this ungenerous feeling, and was the occasion of the publication of a good many libels on our fair fame. I feel sure that so respectable a journal as the *Lancet* would not willingly mislead the public, and when it publishes erroneous statements, it must be itself misled.

In to-day's issue appears a paragraph, intended to sound a new alarm, to the effect that the growing increase of the number of matriculated students and of graduates must weaken the teaching power of the University; and it is even hinted that more attention is paid to the quantity of raw material taken in than to the quality of the manufactured article turned out.

To give a colour to this contention, the *Lancet* states the number of matriculated students at 3340, and of graduates at 522, leaving it to be inferred that all these are *medical*, whereas those numbers include the literary, scientific, law, and even divinity students and graduates. The number of matriculated *medical* students last session was 1743, and the number of *medical* graduates 183.

In case there should be any misgiving as to the capacity of the medical school for overtaking the very large numbers now resorting to it, it should be known that there are now two University buildings,—the one for the medical classes, the other for the general classes; that the staff of teachers is always being increased to meet the necessities that may arise; not only so, but that a number of these students receive a large part of their instruction outside the University altogether, in the admirably equipped medical schools which, without patronage, and without endowment, depend only on the qualifications of their teachers for their success.

May I give one advice, in conclusion, to teachers both in and out of the University. Aware as you must be of the existence of this feeling, stand together shoulder to shoulder. Refuse sops thrown out to you in Medical Bills. Be just and fair to one another, and united you will overcome all opposition. If, however, either one, or other, of the two great departments, intramural and extramural, is made to totter or fall, the day will not be far distant when the other will have to write Ichabod over its gates.—I am, Gentlemen, your obedient servant, ALEXANDER WOOD.

## *REVIEW.*

**Des Diverses Espèces de Forceps,** LEURS AVANTAGES ET LEURS INCONVÉNIENTS, par le Dr. POULLET, Professeur Agrégé a la Faculté de Médicine de Lyon. Paris: Baillière et Fils.

THIS book is divided into two parts. The first gives a careful study of the function of the forceps in obstetrics, and a critical account of the more important modifications which have been effected in the instrument from time to time. The second part is a description of several instruments devised by the author, some of which are already before the profession.

The first chapter is entitled, "On the action of the forceps in general." The author discusses the forceps from four points of view: 1st, as an instrument of prehension; 2nd, of compression; 3rd, as effecting evolution; and 4th, as acting in a special direction.

In speaking of *compression*, he lays special stress on the evil effect of compression on a head lying transversely at the brim, and criticises Chassagny's position, that this evil is avoided by the use of his parallel-bladed forceps, in so far that, according to him, they do not interfere with vertical elongation of the head.

Under the third head, after showing that *evolution* is composed of two elements—1st, flexion, and 2nd, rotation,—the author discusses the various conditions in which flexion may be aided by the forceps. On the much-vexed question as to the propriety of attempting internal rotation by the forceps, he quotes largely from the opinions of those advocating both sides of the question. After stating Gresner's opinion, that all such interference is either useless or unsafe, he adduces the researches of Tarnier and Ribemont to show that no accident need happen to the spinal column or cord by a rotation of the head through 180° with the shoulders fixed, and on the strength of these researches chiefly the author avows himself a partisan of "instrumental rotation," provided it is done "with skill and a good knowledge of the instrument employed."

In connection with this point two remarks occur: (1) Assuming that instrumental rotation is both safe and advisable, *where* is it to be attempted? Does it not in spontaneous labour occur in different cases at different heights? Where then, are we to elect to perform the operation? But (2) is it not fortunately one of the chief advantages of the instrument which the author so strongly recommends later on (Tarnier's forceps), that in almost any case of defective rotation treated by it rotation takes place completely; and if, on the other hand, it does not take place, how can it be done by an instrument whose traction handle works on a swivel? It would seem that the "let alone" policy deserves better at the hand of its opponents than it fares.

Under the subject of the *direction of the traction*, the author gives an excellent account of the relation between the cranial ovoid and the pelvic canal. This section is well worthy of careful study—the mechanical principles involved in determining the transit of the head being stated with a clearness rare in obstetric treatises.

This mode of discussing their action gives the author a "basis of division" on which he classifies forceps. This division is sufficiently accurate to be practically satisfactory.

FIRST SPECIES.—*Those devised to favour prehension* include straight and curved forceps.

SECOND SPECIES.—*Those devised to diminish compression* include parallel and asymmetric forceps.

THIRD SPECIES.—*Those devised to favour evolution* include mechanical forceps of Joulin, Chassagny, &c.

FOURTH SPECIES.—*Those devised to ensure correct direction* include Hubert and Tarnier's forceps, &c.

Chapter II. is devoted to a study of straight and curved forceps, those of Chamberlen, Palfyn, and Lazarewitch (straight); and Levret, Pajot, Simpson, Barnes, Stoltz, Nægele, Beluzzi, and Trelat (curved), being described.

The advantage of the curved in favouring application at the brim, and their disadvantage in interfering with evolution in imperfectly rotated cases are very clearly brought out.

Chapter III. gives an account and criticism of the parallel forceps of Thenance, Valette, Trelat, and Chassagny, &c., and the asymmetric forceps of Hamon, Mattei, &c. The author quotes largely from Wasseige, Bouchacourt, and others, in criticising these instruments, and while admitting their advantages in some respects, shows that these are outweighed by their more important disadvantages.

Chapter IV. is devoted to a discussion of the various forms of forceps acted on by mechanical tractors, such as the screw and pulley. This variety he terms "forceps libres."

Chapter V. is the most important and valuable in the volume. Here the author discusses at some length the principles on which the forceps of Hubert, Tarnier, &c., are constructed. Speaking of Tarnier's forceps, he says:—"In the important work of Tarnier, that which has aroused this legitimate and widespread change of opinion is this, that in the same instrument he has united the two great obstetric principles of Hubert and Chassagny, and this, *almost* without removing from the ordinary forceps those qualities which one is accustomed to seek in them.

"Hubert (of Louvain) has realised his principle in having fixed a rigid rod to the handle of the forceps. Chassagny (of Lyons) has realised his by the silk cords, making part of an highly complex apparatus; without setting himself to simplify it, or to render it fit for ordinary use, he throws himself into other studies. Tarnier has combined in his bent metallic rods, with a movable handle, the advantages of the fixed rod of Louvain and those of the cords of Lyons" (p. 131).

In speaking of the various modifications of Tarnier's instrument, special attention is paid to Simpson's "Axis-traction forceps." He describes them as having the same good and bad qualities as the original type, "since, in short, it is exactly the method of traction of the Paris accoucheur adapted to the Edinburgh forceps." This is no doubt true, so far, but Simpson's instrument excels Tarnier's in its lightness, simplicity, and its greater convenience in relation to the left side position of delivery, for which the cumbrous French instrument is ill adapted.

Dr. Poullet evidently considers it necessary to apologise for the "fixation screw" as an unavoidable evil. There can hardly be any doubt, however, that a great deal too much has been made, by adverse critics, of this supposed defect. If we admit, as we must, that the force exerted on the Tarnier instrument is a mere fraction of that required with the ordinary forceps, it follows that the amount of compression required is proportionately less, and that the duration of each traction is shorter. Taking this into account, along with the rapid delivery which the instrument effects, it is not saying too much to assert that the bad effects of compression, the screw notwithstanding, are less with the Tarnier than with the ordinary instrument. One other point is not accentuated sufficiently by the author, and that is the extreme value of the instrument at the outlet. Nothing can gratify the accoucheur more in the use of this instrument than the great immunity from perineal injury which attends it. Persistent occipito-posteriors, brows, badly rotated vertex cases may all be delivered with little or no perineal tear. Thus while the accuracy of its direction of action in the pelvic axis fits it admirably for use at the brim, none the less is it to be recommended for use at the lower strait of the pelvis.

In the second part, Chapter I. describes the "*sericeps*," whose use is now abandoned; the "*forceps souple*," an ingenious instrument which seems to have done good work, but is too complex for ordinary use; the "*forceps general*," a device for enabling a parietal grasp of the head always to be obtained, but which awaits a practical test. Chapter II. gives an account of the author's mechanical tractor, with which he has effected 150 deliveries, but which he will have some difficulty in persuading the accoucheur to add to his armamentarium. Chapter III. describes some results of an investigation on the amount of pressure exerted by the forceps and pelvis on the fœtal head—a study of much interest. Chapter IV. describes the author's modification of Tarnier's instrument, which seems theoretically more perfect, but is also untried.

There are, no doubt, many who will have some difficulty in accepting some of the statements of the author; but there are few who will rise from a perusal of this work without feeling that a good service to the cause of scientific obstetrics has been performed in its publication. Not the least of its merits are the clearness and preciseness of its statements, free from any trace of unscientific prejudice or dogmatism. To any one desirous of obtaining a comprehensive grasp of the mechanical principles underlying the varieties of this all-important instrument the work can be heartily recommended as one which will repay careful study.

R. MILNE MURRAY.

# *REPORT ON OBSTETRICS AND GYNECOLOGY.*

## BASILYSIS.

1. **Simpson, A. R.**—*Edinburgh Medical Journal*, March and October, 1883.
2. **Halliday Croom, J.**—*British Medical Journal*, 22nd September, 1883.
3. **Brewis, N. T.**—*British Medical Journal*, 21st July, 1883.
4. **Negri, Professor.**—*Annali di Ostetricia*, Luglio-Agosto, 1883.

1. **A. R. Simpson** gives a full description of the basilyst which he has devised for breaking up the base of the fœtal skull. In the latest model, the perforating extremity of the instrument is split to the point. The indication for its use in this (his second) case was dystocia from hypertrophic elongation of the cervix. The base was perforated in two places—in front of and behind the sella turcica,—and the head was extracted with the hand, and was so much diminished in bulk that it could be pushed through a canal of two inches diameter. The mother made a good recovery.

2. **J. Halliday Croom** performed basilysis in a case of rickety pelvis with a conjugate of less than two-and-a-quarter inches. The basilyst pierced the basi-occiput; the head was delivered by supra-pubic pressure, aided slightly by traction with a crotchet. Contrary to expectation, he found that there was but slight risk of the basilyst missing the base so as to injure the maternal parts. "Basilysis has the advantage over cephalotripsy and other forms of embryulcia, that delivery is accomplished without the application of any instrument external to the head."

3. **N. T. Brewis** describes a case in which Dr. Muir used the basilyst in the Glasgow Maternity Hospital. The patient was at the eighth month, and the true conjugate was between one-and-a-half and two inches. The basilyst perforated the base in front of the sella turcica, and the head was easily delivered on moderate traction with forceps.

4. **P. Negri** used the basilyst in a case of rickety pelvis with a conjugate of 78 mm. (three inches). Premature labour was induced at about eight-and-a-half months. As the head could not pass the brim, the vertex was perforated with a trephine and the base broken up with the basilyst. The head was delivered with the cephalotribe, but came away from the shoulders. The basilyst had entered the foramen magnum, and, in breaking up the basi-occiput, had loosened its connection with the vertebral column.

A. H. F. BARBOUR.

## MENSTRUATION.

5. **Leopold.**—UNTERSUCHUNGEN ÜBER MENSTRUATION UND OVULATION. (On the Relation of Menstruation to Ovulation.) I. Anatomischer THEIL, *Archiv. für Gynäkologie*, Bd. xxi. Heft 3.
6. **Wyder.**—DAS VERHALTEN DER MUCOSA UTERI WÄHREND DER MENSTRUATION. (On the Exfoliation of the Mucous Membrane of the Uterus in Menstruation.) *Zeitschrift f. Geburtshülfe und Gynäkologie*, Bd. ix. Heft 1.

5. **Leopold** gives the anatomical part of a very elaborate investigation into the relation of menstruation to ovulation, reserving the clinical aspects of the question for another paper. It is the most thorough and scientific contribu-

tion to a much-vexed question which we have read, and forms a valuable addition to the work of Bischoff and Dalton.

The question is thus stated: "In what relation, with regard to time, does the ripening and bursting of a follicle and the formation of a corpus luteum stand to the menstrual flow? Does a Graafian follicle rupture at every menstrual period, and when does this occur—before, during, or after the flow, or between two periods?"

With regard to the anatomical material to be used in this inquiry, three requisites are insisted on: The organs examined must be either those of women who have died suddenly, or those removed by castration; the date of the commencement of the last menstrual period and the course of former ones must be known; the condition of the ovaries and tubes, and when possible of the uterine mucous membrane, must be carefully examined and described. The written description is supplemented by a series of coloured drawings of the preparations while fresh. Of the eighty ovaries collected during a period of several years, only twenty-nine pair fulfilled the above requirements. Of these, twenty-seven pair were obtained from cases of castration; so that a reliable menstrual history was obtained, and the ovaries were examined while perfectly fresh. They were taken from all periods (from one to thirty-five days) after the commencement of the last menstruation. For the guidance of those who may obtain similar fresh specimens, we give the dates represented in this valuable series:—Counting from the commencement of the last period, we have for the 1st day, 1 specimen; 3rd day, 1; 5th day, 2; 7th day, 1; 8th day, 1; 9th day, 1; 9-10th day, 1; 11th day, 1; 12th day, 1; 12-13th day, 1; 14th day, 1; 15th day, 3; 16th day, 3; 18th day, 1; 20th day, 1; 21st day, 2; 22nd day, 1; 23rd day, 1; 24th day, 1; 26th day, 1; 35th day, 1.

After a carefully detailed description of these preparations, L. gathers up the facts brought out in them, under two heads: the *follicles* and the *corpora lutea*. (1) With regard to the former, he found *follicles* ripe and on the point of bursting in ovaries at all the dates—not specially in those taken near the menstrual period; he found also, at all dates, follicles which had quite recently burst. This fact will modify our view as to conception; which may occur at any time, and not only in connection with a menstrual period. Ripe follicles were found in groups of two and three, with the intermediate septa so thinned that their simultaneous rupture seemed extremely probable; this gives an explanation of multiple conceptions resting on an exact anatomical basis. Follicles were also found filled with blood although they had not ruptured—a condition to which Dalton has also drawn attention; some of these were undergoing retrogressive changes like corpora lutea. (2) With regard to the *corpora lutea*, two distinct varieties are described—the typical and the atypical. In the typical form, the cavity is distended with blood which undergoes the well-known retrogressive changes in three to four weeks; in the atypical, the cavity contains only a small quantity of blood and passes through the retrogressive changes in half the time. This last atypical form is supposed to be produced by the bursting of a follicle, between the periods, when the ovary is not congested. The most important observation, made from this series, with regard to the corpus luteum is that in nine cases out of the twenty-nine there was no corpus luteum corresponding to the last menstrual period; hence the important deduction that menstruation does not necessarily imply the rupture of a follicle.

The conclusions as to the relation of menstruation and ovulation are thus summed up: "Ripe follicles may rupture at any time; the corpora lutea may be typical or atypical; menstruation may occur without ovulation just as ovulation may occur without menstruation."

6. **Wyder's** paper is an interesting contribution to the much-vexed question whether there is exfoliation of the mucous membrane of the uterus in menstruation, and to what extent this takes place. He examined the mucus and blood in the case of nine menstruating women in whom the pelvic organs, or at least the menstrual function, was normal. The mucus and blood were obtained from the cervical canal by means of a syringe, care being taken not to detach portions of mucous membrane with the point of the syringe or by forcible aspiration. The discharge was examined on different days, from the second to the eleventh. He found in almost every case cylindrical epithelial cells, sometimes ciliated, and in one instance, a shred of the mucous membrane with the cells showing ciliary motion. Further, the cells of the interglandular tissue, distinguished by their large nuclei and thin layer of protoplasm, were present in many specimens. After the first days of the period, these formed-elements became replaced by broken-down cells, free nuclei, oil globules, and other products of degeneration.

The number of cases (nine) is small, and the condition of the mucous membrane cannot be considered as normal in all the cases (in four there was retroflexion or version, and in one prolapsus, all of which probably implied endometritis). The fact, however, remains that there was debris in the discharge, which implied exfoliation of part of the superficial layer and of interglandular tissue.

The absence of products of fatty degeneration in the first days leads Wyder to hold with Leopold and Möricke, that there is not a primary fatty degeneration of the mucous membrane. On this point, he differs from Williams, Kundrat, and Engelmann. He holds that the amount of exfoliation of the superficial layer varies in different cases, and believes that Möricke was led to his conclusion, that there is no exfoliation of the membrane at all, by the fact that the curette brought away just those parts of the membrane which had their epithelium intact.

The rest of the paper is an attempt to reconcile the discrepancy in the views of the various investigators on this subject. We give the conclusions in full, as they represent the results of investigation up to date:—

1. During menstruation one portion of the superficial layer of the mucous membrane is destroyed, while the other is preserved. This exfoliation of the superficial layer occurs to a different extent in different cases, being sometimes complete, sometimes very limited. The exfoliated shreds can be demonstrated, in part well preserved, in part broken down as debris; indeed, we find in individual cases small shreds of membrane in the mucous discharge like those of membranous dysmenorrhœa, but which on account of their small size occasion no dysmenorrhœal suffering.

2. The exfoliation is a result of the menstrual flow, not of a primary fatty degeneration. The latter is rather the result of the stripping-off and destruction of tissue caused by the hæmorrhage.

3. The superficial and middle layers of the mucosa which remain possess a distinctly small-celled character, and have no resemblance to the decidua of pregnancy; while we meet, in the deepest layers, with a cellular hyperplasia of the interglandular tissue, which is evidently intended to restore the tissue which has been destroyed during menstruation.

4. The regeneration of the superficial epithelium follows from the epithelium of the glands and of the portions of the superficial layers which remained intact.

A. H. F. Barbour.

## EXTRA-UTERINE GESTATION.

7. **Freund, W. A.**—EXTRA-UTERINE GESTATION. *Edin. Med. Journal*, Sept. 1883.

8. **Brendel.** — EXTRA-UTERIN-SCHWANGERSCHAFT, LAPAROTOMIE IM ACHTEN MONAT, ERFOLG. *Centralblatt für Gynäkologie*, No. 41, 1883.

7. **W. A. Freund**, in a paper read to the Edinburgh Obstetrical Society, gives his clinical experience of fifteen cases of extra-uterine gestation. This paper is a valuable contribution to the literature of this subject, specially with regard to diagnosis and operative treatment. The cases are divided into two groups: (A), those in which pregnancy had been interrupted by the death of the fœtus; and (B), those in which it went on to full time.

As the details of these cases are of great clinical interest, we take the liberty of giving them somewhat fully, and presenting them in the subjoined tabular form (*vide* pages 49, 50):—

The situation of the placenta on the intestine is referred to as a point of importance in abdominal gestation. Intestinal catarrh and dysenteric evacuations with severe colicky pains indicate this (see cases (A) IV. and V.). Putrid decomposition of the ovum, and general infection of the system, is liable to occur here, as the germs readily pass from the intestinal canal. Freund would arrange these various forms of extra-uterine gestation (putting aside the intersitial, and that in an undeveloped horn) in four groups: *tubal gestations* which produce at an early stage intermittent pain like dysmenorrhœa, and then the well-known symptoms of internal hæmorrhage and peritonitis; these cases end in abatement of the inflammatory symptoms and recovery, or suppuration and discharge of the contents — rarely are they immediately fatal; *ovarian pregnancies*, which are painless in the early months; *abdominal gestation*, with placental insertion *on the intestine*, characterised by severe intestinal catarrh and even dysentery; *abdominal gestation*, with the placental insertion *not on the intestine*.

With regard to treatment, the following is recommended.

In the first stage (one to three months) puncture the sac, and inject morphia; if the sac has ruptured, do not operate, but treat the anæmia and peritonitis. After the third month watch the case, and pay special attention to the regulation of the bowels. If the fœtus is dead, and there is no reaction, wait; if there is peritonitis treat the symptoms, and operate as for a circumscribed exudation—open, evacuate, and drain. If the child be living, perform laparotomy. With regard to laparotomy, three points are insisted on: the gestation-sac must be carefully shut off from the peritoneal cavity, which is best done by stitching it to the abdominal incision before cutting into it; the sac should be opened and emptied slowly, so as not to detach the placenta; the sac, with the unremoved placenta and membranes, must be kept aseptic, which is best done by sprinkling it with a mixture of tannin and salicylic acid, and packing it with antiseptic wool, while a drainage-tube is passed into its deepest part.

### A. Cases in which Pregnancy was interrupted by the Death of the Fœtus.

| *Obstetric History.* | *Period of Examination and Condition.* | *Course and Treatment.* | *Termination.* |
|---|---|---|---|
| Case I.—*Æt.* 32; married for nine years; abortion and pelvic peritonitis eight years previously. | At second month, tumour, size of the fist, to right of, and close to uterus, which was twice the normal size, and pushed to the left side. | At the third month some symptoms of rupture, followed a fortnight after by those of severe internal hæmorrhage. | Recovery in four months. An uneven cicatrised mass remained to right of uterus. |
| Case II.—*Æt.* 30; had a living child ten years previously, and an attack of puerperal inflammation. | At two and a-half months, tumour close to right border of uterus, and partly adherent to abdominal wall. | Tapped to arrest pregnancy, and a teaspoonful of thin pale red-coloured fluid obtained. Pelvic peritonitis followed. | Recovery. Six months afterwards a firm, hard swelling, size of the fist, in position of tumour. |
| Case III.—*Æt.* 28; married four years; full time labour and normal puerperium two years previously. | At about eighth week, sudden attack of fainting and pain, with discharge of a decidua. Examination showed uterus twice normal size, and pushed to the right by an ovoid tumour, the size of the fist, in the lower and anterior part of the pelvis. | About third month another fainting attack, followed by pelvic peritonitis. | Recovery. In two months a shrivelled cord marked site of tumour. |
| Case IV.—*Æt.* 28; married nine years, and born four full-time children—last fifteen months ago. No history of inflammation given. | At about third month; a retro-uterine tumour of variable consistence, filling the pelvis and pushing the uterus and bladder upwards. She has had frequent diarrhœa, with bloody evacuations. | In a few days a putrid mass expelled per vaginam, leaving a rent in the posterior fornix opening into a cavity containing blood-clot and placental debris. | Recovery. In five weeks uterus found retroverted, and fixed to rectum and posterior pelvic wall. |
| Case V.—*Æt.* 37; married four years, had a normal labour seventeen years' ago. No history of inflammation given. | About fourth month; a retro-uterine tumour, extending from the posterior fornix to 1½ inches above the umbilicus on the left side. Uterus thrice the normal size, elevated to the front and right, and discharging muco-purulent fœtid fluid with decidual cells. Diarrhœa and sometimes evacuations of a dysenteric character. | Aspiration of tumour gave putrid fluid without distinct tissue elements. Abdominal section showed an abdominal gestation with a macerated fœtus and placenta attached to iliac flexure and posterior wall of Douglas pouch. Sac removed as thoroughly as possible, and drainage by vagina and abdominal wound. | Death. The post-mortem showed swelling of the intestinal mucous membrane corresponding to attachment of placenta. Secondary septic affection of lungs. |
| Case VI.—*Æt.* 40; two normal deliveries, last fourteen years since, with normal puerperia. | At two and a-half months, abdominal pain, retention of urine, and fainting, and then peritonitis. A week later, elastic ovoid tumour about size of a child's fist found in front of uterus, which was flattened and twice its normal size. Hæmorrhage from genitals for fourteen days. | Tumour became smaller and firmer. | Discharged in three weeks, well. Uterus retroverted and fixed, and sausage-shaped tumour traceable from its left corner. |
| Case VII.—*Æt.* 34; seven years ago forceps labour with normal puerperium. | At one and a-half months, a sausage-shaped, elastic tumour, about 4¾ inches long, found in position of right fallopian tube. Symptoms of rupture before examination. | During next three months symptoms of hemorrhage and peritonitis; a month later passed bloody purulent masses from vagina and rectum. | Recovery. Uterus now fixed to the right side. A cicatricial mass occupies right broad ligament. |

### A. Cases in which Pregnancy was interrupted by the Death of the Fœtus—*continued.*

| *Obstetric History.* | *Period of Examination and Condition.* | *Course and Treatment.* | *Termination.* |
|---|---|---|---|
| Case VIII.—*Æt.* 27; seven months previously had her fourth child; always healthy. | At sixth week had attack of pain, fainting, and metrorrhagia, and a second at ninth week. An elongated swelling twice the size of the fist, which pushed the uterus forwards and to the left, and doughy masses in pouch of Douglas. | A large peritonitic exudation followed, which suppurated and discharged through the bladder and rectum. | Recovery. |
| Case IX.—*Æt.* 23; three years ago full-time child, and fifteen months ago an abortion followed by parametritis. | At fifth month, tumour size of child's head, rounded, elastic, adherent, which pushed uterus to the right and forwards. Souffle heard, but no heart-sounds nor movements felt. For four months was well, and then symptoms of peritonitis developed. | At sixth month, weak current of electricity applied, which checked growth of sac. | Recovery. Sac became firmer and smaller. |
| Case X.—*Æt.* 23; married one and a-half years. | At about sixth and tenth week, attacks of pain and vomiting, followed by peritonitis; and at twelfth week, a flat rounded tumour in right inguinal region. | General peritonitis and discharge of putrid masses through an opening above the sphincter tertius. | Death. No post-mortem. |
| Case XI.—*Æt.* 42; four normal labours previously. | Ten years ago had for five months the symptoms of pregnancy, which passed off. One and a-half years ago had a full-time child extracted as a footling with difficulty, and dead. Six months ago a fragment of bone expelled, and acrid leucorrhœa set in. | Removed from a fistulous opening in the right fornix, the bones of a five-months fœtus from a sac in the pouch of Douglas. | Recovery. Uterus became fixed to the back of the pelvis. |
| Case XII.—No history of illness till fourth child, delivered by forceps; an interval of two years elapsed between third and fourth child. | Twelve days after its birth symptoms of inflammation appeared, and the bones of a six-months fœtus were extracted from a sac between uterus and rectum. | | Recovery. |

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### B. Cases in which the Pregnancy went on to Full Time.

Case I. *Æt.* 46; has had five normal pregnancies and puerperia. Eighteen months ago menstruation stopped, and patient thought she was either at meno-pause, or pregnant. For six weeks reduced by fever, abdominal pain, and diarrhœa. Examination, under chloroform, showed a firm nodulated tumour, extending from the pouch of Douglas to the umbilicus. The fœtus was only discovered at the post-mortem, and was shrivelled-up and partly gangrenous.

Case II.—*Æt.* 31; had a normal labour eight and three-quarter years ago. Had chronic metritis and cervical catarrh, but the parts adjacent to the uterus had been considered normal. She became pregnant, and during the latter half of the gestation had abdominal pain, with metrorrhagia, while the parts of the child were palpated with unusual distinctness. At the ninth month the movements ceased, and the tumour, which lay separate from the uterus, became firm and smaller—a lithopædion formed.

Case III.—*Æt.* 34. Case of pregnancy at the third month, diagnosed as a left-sided ovarian gestation, the uterus, right ovary, and tube, being distinctly made out. Four months after this, as the patient was becoming emaciated and had symptoms of inflammation, laparotomy was performed. The sac was emptied, and stitched to the abdominal incision, and drained through it, but the placenta was left *in situ*. Patient made a good recovery.

A. H. F. Barbour.

8. The case reported by **Brendel** illustrates well the difficulty in diagnosis presented by some forms of extra-uterine gestation.

Patient, *æt.* thirty-two, had borne a child sixteen years before, been a widow for fifteen years, and had married again. Menstruated last six months ago, and had irregular hæmorrhages since. For four weeks has had no passage of the bowels. No retention of urine. A tumour of rounded form, smooth surface, firm and elastic consistence occupied the pelvis; the posterior vaginal wall bulged downwards, the fornices drawn upwards, and no cervix distinguishable. (The condition, in fact, exactly resembled a case, which we described, in *The Edinburgh Medical Journal* for October, 1882.) Neither fœtal movements nor bruit could be heard. The diagnosis was made: Impaction of the retroverted gravid uterus. As all attempts at reposition failed, and the condition of the patient was serious, laparotomy was performed. On abdominal section, the bladder was found with its fundus 5-6 c.m. above the symphysis, though it contained little urine; behind it lay the uterus, which was double the normal size and infiltrated with serum so as to be of a doughy consistence. As the results of puncturing the tumour were negative, it was cut into. The fœtus was extracted easily, and was almost full-time (?), slightly maccrated but sweet. The placenta was broken-down, almost quite free, so as to be removed with little hæmorrhage. A counter opening was made through the vaginal roof, and a T drainage-tube inserted. The upper wound in the sac was not closed, a drainage-tube was placed from it into the abdominal cavity, and brought out through the abdominal wound which was so far closed with sutures. After seventy-three days, the patient recovered with an abdominal and vaginal fistula, which afterwards closed.

This case shows us that we may be justified in opening into an adherent sac even though we cannot stitch it to the abdominal walls. The withered condition of the placenta made this a simple procedure in this case. If the operator had cut into a well-developed growing placenta attached to the whole of the posterior and upper wall of the sac (such as is figured in our case referred to above), the result for the patient might have been different.

A. H. F. Barbour.

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## Antiseptics in Midwifery.

9. **Toporski.** — Das Sublimat als Desinficiens in der Geburtshülfe. (Corrosive Sublimate as an Antiseptic in Obstetrics.) *Centralblatt für Gynäkologie*, No. 35.

In this paper the author gives the results of his midwifery experience, after a three months' use of a solution of corrosive sublimate as an antiseptic and disinfecting agent, and compares them with those of the corresponding period of the year before, when carbolic acid in solution was employed, in the lying-in clinic of Fritsch at Breslau. The solutions employed were two—the first being of the strength of 1 to 1000, the other 1 to 5000. With the first of these, the hands and arms of the examiner were thoroughly scoured, and before examination the maternal parts were washed with it. The second was used in cases were there were tears or ruptures, and this in order to avoid the smarting caused by the stronger solution. For intravaginal and uterine washing, the author used a glass tube, perforated at intervals (metal is acted on chemically by the solutions), and with a suitable curve. Since using these solutions, he has found—

1. The average length of time the women remained under treatment was shorter. In the summer session of 1882, this was on the average 11·37 days; in 1883, 8·9 days.

2. There were fewer bad results after labour this session than last, notwithstanding that operative interference was required as often. The percentage of illness after birth during the summer session of 1883 was only 7·5, as compared with 16·27 in 1882. One death resulted from acute septicæmia, and the source of infection was distinctly traced to one of those examining neglecting careful disinfection after having been in contact with putrid wounds.

3. The duration of illness was on the average 13·37 days, as compared with 20·76 in 1882, thus showing the maladies to have been of a milder nature. As a matter of fact, they were cases of endo- and parametritis, with slight fever, and which caused no anxiety.

In eight cases there were pieces of the membranes retained, and by careful cleanliness and washing with the 1 to 1000 solution, and frequent changing of cloths dipped in this solution, these ran without exception a favourable course.

From these results the author warmly advises a further trial. The only objection to the general use of this agent seems to be on account of its action on metal instruments.

ALEX. BLACK.

10. **Wiedow.**—ZUR FRAGE DER ANTISEPSIS WÄHREND DER GEBURT. (On Antiseptics in Midwifery.) *Centralblatt für Gynäkologie*, No. 37.

To show what good results may be attained in midwifery practice by the careful use of antiseptic and disinfecting agents, the writer of this paper has collected the statistics of mortality and disease during the last five years in the lying-in institute at Freiburg.

The following were the precautions taken:—

No one was allowed to examine who had been near infectious diseases within forty-eight hours, and whose clothes had been in contact with such diseases within eight days.

Before examination, the coat was taken off, the shirt-sleeves drawn up to the elbows, and the hands and arms were rubbed over with oil of turpentine, which was washed away with warm water and soap. Then the hands were brushed with a strong solution of permanganate of potash and soap, dried, and immersed for some seconds in a solution of corrosive sublimate (1 : 1000). Carbolic oil was smeared on the finger before examination.

The women were washed with a solution of corrosive sublimate (1 : 5000) the moment of their admission to the examination-room. Corrosive sublimate has been used instead of carbolic acid only latterly.

The statistical tables show the hospital to have been, especially in latter years, singularly free from diseases of a septic nature. In 1882-83, 144 cases of labour occurred with only two deaths, one of which resulted from loss of blood from a central placenta prævia, the other from caries of the pelvis. In 1882-83, there were six cases of disease after labour: two the result of embolism and thrombosis, two of catarrh of the bladder, and two of pneumonia.

If such results can be attained in hospital practice, how much more, surely, in private practice, where the conditions are infinitely better. The corrosive sublimate solution is made by adding 1 gramme dissolved in hot water or alcohol to a litre of water.

ALEX. BLACK.

11. **Bröse.**—Das Sublimat als Desinficiens in der Geburtshülfe. *Centralblatt für Gynäkologie*, No. 39.

Following up Toporski's paper on the use of this agent, Bröse gives his experience of it as an antiseptic in a department of the Berlin lying-in clinic. Out of 330 cases of labour, only ten were affected with diseases of a septic nature, and of those only two died, and these had been the subjects of operative interference (both high forceps operations).

Alex. Black.

## Laceration of Cervix.

12. **Van de Warker.**—An Analysis of Thirty-one Operations for Repair of Laceration of the Cervix Uteri. *Am. J. of Obst.*, July, 1883.

In our present stage of doubt as to the indications and results of Emmet's operation, this careful and judicious paper of Dr. Van de Warker is of great value. There is in it a moderate tone, which unfortunately many writers on this subject have not employed.

In the thirty-one cases given, we find that in twenty-four the laceration occurred in normal labours; in four the labour was tedious; in one instrumental; and in two, abortions at the fifth month are credited with bringing it about. While this table shows much, it would have been more valuable if the nature of the puerperum had been stated.

The table giving the objective and subjective symptoms is too elaborate for fair condensation. In seven, the uterus was prolapsed; in twenty-one, retroverted; and in four, both retroverted and prolapsed. In about twenty-six, there was marked cervical catarrh, and in all there were present what Dr. Van de Warker calls sacralgic, or ovaralgic pains.

The most striking part of the paper is in regard to the indications for the operation. Here, indeed, there are statements the truth of which we do not believe many American gynecologists will admit, although they are probably correct. Dr. Van de Warker states distinctly that he stitches a lacerated cervix "to relieve a specific injury." Cervical catarrh and retroversion "are uniform attendants of the morbid status;" but he ignores them as symptoms, and operates to cure sterility, and to relieve the neuralgic pains caused by the split. He holds that the sterility is caused by the laceration destroying part of the power of the cervical canal to retain the spermatic fluid.

As to his results, he says that the uterine displacement was unchanged in sixteen cases; improved in eleven cases; catarrh unimproved in ten, and improved in eleven cases. Subjective symptoms were unimproved in three cases, and improved or entirely relieved in sixteen cases. Nutrition was improved in eighteen cases, unchanged in five. Other treatment was found necessary in twelve cases.

It has been said by some critic, with more wit than truth, that gynecologists, after proclaiming that splitting the cervix was necessary when the os uteri seemed small, were now busily stitching it when nature had anticipated them in their operation. This reproach is to a certain extent deserved, inasmuch as gynecological treatment has to be, like most medical treatment, undertaken before the pathology and exact nature of the lesion to be cured is known. The most usual information any one gets as to Emmet's operation is, that the operation was performed on Mrs. So-and-so, with no immediate bad results, and that she expressed herself better after it, and gratified with the assertion that this tear of the mouth of the womb was the cause of her irritability and sterility.

Now, while Dr. Van de Warker's paper is admirable in its way, yet what we want to know is this: Given the ordinary case of associated split cervix, retroversion of an enlarged uterus, cervical catarrh, menorrhagia, some cellulitis, and neuralgic symptoms, what is the pathology of this combination? It is of no use giving the mechanical explanation that Emmet advanced in the first edition of his "Gynecology." Gynecologists are at present stitching the cervix before they know the pathology of the condition. Dr. Van de Warker's paper is a good, honest, and courageous one; but what we want is more pathology, and fewer operations till we get it.

D. B. Hart.

# *REPORT ON DISEASES OF CHILDREN.*

## On Imperforate Anus and Rectum in Infants.

**Cripps, W. Harrison.**—St. Bartholomew Hospital Reports. Vol. xviii. 1882.

THE author here gives an interesting record, in tabular form, of 100 cases of imperforate anus and rectum in infants, collected from various sources, with remarks on pathology and treatment. From all the cases he has been able to find recorded by various authors, it is estimated—although he admits "statistics diverge somewhat widely"—that such conditions occur in 1 in every 4588 births.

Such malformations, he states, referring to the pathology of the subject, are the result of arrested development in early fœtal life. He refers to the ascertained facts regarding the development of the intestinal canal, and its ultimate formation, from the closing in of the yelk sac, which gradually becomes changed from its ovoid form into a long, straight canal, still closed at either end. This eventually becomes convoluted, terminating at either extremity in a *cul de sac*. The *cul de sac* of the anus comes in contact with the blind termination of the rectum, and it is by the gradual absorption of the two intervening layers that communication between the rectum and anus is established. The malformations formed in the cases referred to arise from arrest in the completion of this process of absorption. The termination of the rectum in the genito-urinary tract is due, in addition to this arrest of development, to a failure in the complete formation of the septum separating the rectum from that tract, which in the embryo have a common orifice.

Clinically he divides these malformations into five—(1) Complete absence of anus; (2) anus more or less defined terminating in a *cul de sac;* (3) anus and rectum well formed, but the latter obstructed by delicate fold of membrane; (4) anus and bowel well formed, but outlet obstructed by a "tail-like" fold of skin in the median raphe, on one or both sides of which a small opening may be found; (5) bowel may open in some portion of the genito-urinary tract. In the female, the communication is generally with the vagina through its posterior wall; and in the male, the communication may be either between the bowel and base of bladder, or prostatic portions of the urethra.

Discussing these varieties, he mentions that the third and fourth are comparatively rare, the others of greater frequency. In regard to the fifth variety, where communication exists with some portion of the genito-urinary tract, he considers the results of operative interference extremely unsatisfactory. The treatment in the various classes of cases is given in the table already alluded to. In many of the more interesting of them, particulars are recorded which will amply repay perusal. Altogether the paper is one well worthy of careful study.

JAMES CARMICHAEL.

## CONVULSIONS OF CHILDHOOD.

**Adolf, Professor Dr.**, Kjellberg in Stockholm.—UEBER DIE URSACHEN DER CONVULSIONEN BEI KINDERN. *Archiv. für Kinderheilkunde*, Vierter Band, 7 und 8 Hefte.

The author here treats of the etiology and pathology of the convulsions of childhood. He refers to those cases in which the spasms are of a clonic nature, in contrast to those in which the contractions are tonic. He alludes to the importance of bearing in mind the results of experimental physiology in the study of such conditions, and also to the rarity with which central nervous lesions are discovered in eclampsia and epilepsy, as well as in the special conditions under consideration. He notes the researches of Brown-Séquard, Schiff, Kussmaul, and Teuner in regard to the pons and medulla as seat of the disease, also to the observations of Landois in regard to the association of venous hyperæmia with such conditions; also the opinion of Hermann, Escher and Nasse on venous stasis and retention of carbon compounds in the blood.

Convulsions, he considers, are caused as well through cerebral anæmia as venous hyperæmia. New-born children are less disposed to be attacked than those a few months older. Clinically, he divides convulsions into *symptomatic* and *sympathetic;* the former being caused either through disturbance of the circulation or changes in the blood itself. If the flow of blood to the brain be suddenly stopped, the pupils become contracted at first, then dilated, trismus, rolling of the eyes, laboured and short breathing which subsequently becomes slow and deep, are rapidly followed by convulsions, with unconsciousness. When the circulation returns to its normal condition all the symptoms subside.

*Cerebral anæmia* occurs under the following conditions:—

(1.) *Sudden loss of blood.*
(2.) *Loss of fluids* through vomiting or diarrhœa.
(3.) *Arterial spasm* arising from terror, anger, &c.
(4.) *Compression of the skull* in young, delicate children.
(5.) *Anatomical changes* in the brain, from blood extravasation, softening, new formations, &c.
(6.) During the continuance of certain diseases, brain anæmia likewise is developed.

*Symptomatic convulsions* are caused by changes in the blood—

(1.) An abnormal temperature—as in fever, when convulsions occur frequently in the early stages, being equivalent to the rigors of adults.
(2.) Infectious diseases—such as variola, vaccinia, or morbilli, &c.
(3.) Blood poisoning by mineral or vegetable substances or poisonous gases. In this connection he relates an interesting case of Soltmann's, where convulsions were caused in the child by a wet-nurse partaking freely of brandy.
(4.) Blood—as in pyæmia, septicæmia, cholæmia.

*Sympathetic convulsions* are those caused by reflex irritation, such as burns, wounds, &c. The largest class of these cases may be set down to irritation of the mucous membranes of the stomach and bowels. He considers it still an open question whether convulsions are caused by the direct presence of intestinal worms, as so many cases are met with where their presence is not accompanied with any such occurrences.

In regard to the question of *teething*, he says the evidence is decidedly in favour of this condition being frequently accompanied by convulsive seizures.

*Hereditary disposition* is likewise noted as a common cause. *Simulation* has been observed in older children.

JAS. CARMICHAEL.

## CASE OF ACUTE RICKETS.

**Weihl.**—ZUR CASUISTIK DER ACUTEN RACHITES. *Jahrbuch für Kinderheilkunde*, N. F. xix. S. 483.

The author here relates a case of acute rickets ending in complete recovery. A healthy child was reared on the breast for the first six weeks, and afterwards with Nestle's Food. At the end of four months, two incisor teeth were cut. When five months old, the infant was vaccinated from a healthy child. Soon after, it was attacked with gastro-intestinal catarrh. Signs of rickets began to manifest themselves in the bones of the skull. The chest bones, and also those of the extremities, became deformed in the usual manner, rosary being tolerably well marked. A wet-nurse was now procured for the child, and steadily the signs of rickets disappeared; and, at the end of ten months, the health was re-established.

JAS. CARMICHAEL.

## *ERRATUM.*

In Dr. Hart's paper, page 17, the following line was omitted:—"The microscopical examination of the tumour was conducted by Mr. Edwin Baily, M.B."

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## ORIGINAL ARTICLE.

### ON THE ACTION OF INFUSED BEVERAGES ON PEPTIC DIGESTION.

By JAMES W. FRASER, M.D., C.M. Ed.; M.R.C.S. Eng.

THIS paper is an abstract of the results of a series of experiments performed by the author with the view of elucidating the action of infused beverages in producing the dyspeptic symptoms, which so frequently follow their use, and if possible, to find some means of reducing these undesirable actions. Fuller details of the processes followed, and of the results obtained, are contained in a thesis presented to the Medical Faculty of the University of Edinburgh for graduation as Doctor of Medicine, in August last. The experiments were performed in three series; one, in which the effect of the action of fixed quantities of the beverages on the digestion of fixed quantities of meat by a fixed quantity of digestive fluid was ascertained by estimating the amount of peptones produced—these were called, for the sake of reference, peptone experiments; a second series, in which the time taken for complete solution of a fixed quantity of coagulated albumen, the other conditions being as in the first series, was taken as the test, these being known as time experiments; and a third series, with varying circumstances in each experiment.

The beverages subjected to experiment were the following:—As example of the teas (*i.e.*, beverages infused from prepared leaves): mixed tea, Chinese tea, Indian tea, green tea, mixed tea infused with water made alkaline with carbonate of soda, and maté. Of the coffees (*i.e.*, infusions of prepared berries): ordinary coffee, coffee with chicory (one part of chicory to four parts of coffee), and coffee prepared by the Arab method as detailed by the traveller, W. G. Palgrave,*—viz., the berries, very slightly roasted and broken into fragments, and the infusion prepared by a very brief boiling with water. Of the cocoas (*i.e.*, gruels made from ground prepared seeds): the following examples were used—Schweitzer's cocoatina, to represent those cocoas from which the greater part of the fat has been extracted, Epps's cocoa, as an example of those from which no fat has been extracted, and which contain starch and sugar, chocolate menier, guarana, and cocoa nibs.

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* "Central and Eastern Arabia," pp. 36, 37; Palgrave. 6th edition. Macmillan.

Of these beverages five were taken as of more importance—viz., mixed tea, coffee, Schweitzer's cocoatina, Epps's cocoa, and chocolate, and to this list water was added to give an experiment for comparison. Each of these six beverages was subjected to experiment with eight kinds of food—viz., coagulated albumen (hard-boiled white of egg), roast beef, boiled salt beef, roast lamb, boiled ham, roast fowl, fish (boiled haddock), and bread. The remaining beverages being less important in this country at least, experiments with them were tried with white of egg only. The beverages were carefully prepared, precisely the same process being followed in the preparation of each every time it was used. The artificial gastric juice employed in all the experiments had the following composition:—

| | |
|---|---|
| Benger's liquor pepticus, . . . . | 20 c.cs. |
| Dilute hydrochloric acid, . . . . | 12 c.cs. |
| Distilled water, to . . . . . . . | 100 c.cs. |

The dilute acid was the volumetric normal hydrochloric acid solution containing 3·65 grms. of hydrochloric acid gas in 100 c.cs., and was used in the proportion of 2 c.cs. of the dilute acid in every 100 c.cs. of digestive fluid, for each hour the experiment lasted. This formula gave a pale yellow acid fluid of specific gravity 999·48 to 998·059, which gave an albuminoid precipitate on heating to 75° C.

Almost all the experiments were performed by one process, of which a sketch will be given, and which will afterwards be referred to as the "standard process." 5 grms. of meat were digested in each case with 50 c.cs. of digestive fluid and 25 c.cs. of beverage. The digestion was performed at a temperature of 37·7° C. (100° F.), and lasted six hours, the only peculiar feature in this part of the process being that a tube was placed in the beaker in which digestion was going on, and part of the fluid was drawn up into this tube through a valve at its upper end, and the fluid, being retained in the tube and cooling there, caused convection currents which kept up a continual slight movement in the fluid and meat. 25 c.cs. of the filtered chyme after digestion were subjected to dialysis for twenty-four hours, the dialyser being suspended in a saucer containing 100 c.cs. of distilled water. The solution of dialysed matters in the saucer having been drawn off by a syphon, was replaced by another 100 c.cs. of water, and dialysis continued for twenty-four hours more. The 200 c.cs. of liquid thus obtained were mixed and evaporated to dryness in a water bath, 5 grms. of sodic chloride having previously been added to the solution to make the residue a more manageable substance. The organic matter in the residue was estimated, and the result corrected so as to apply to the whole 75 c.cs. of liquid digested, instead of to the 25 c.cs. dialysed.

It must be noticed that by this process no distinction is made between dialysable organic matters derived from the beverages and digestive fluid, and those derived from the meat. Therefore, that no error might occur from this, a set of experiments were performed by the standard process, with this exception, that no meat was used. The results of these digestions of the beverages are noted in Table A, and are there called "factors." From this table it is seen that the factors vary, from that for digestive fluid (50 c.cs.) digested in presence of water (25 c.cs.)—viz., ·192 grm.—to that for mixed tea, ·226 grm., and those for Epps's cocoa, ·53 grm., and for chocolate, 1·059 grms. The largeness of these two last figures shows that the dialysable organic matters derived from the beverages might cause great errors in the results, when meats were digested in presence of these beverages; and, therefore, from the results of the process above detailed, obtained by the digestion of any meat in the presence of a beverage, the factor for that beverage must be deducted, so as to obtain a correct result.

### Table A.

Results of Digestion of 50 c.cs. of Digestive Fluid alone, with 25 c.cs. of Water, and with 25 c.cs. of each Beverage.

| | | Factors. |
|---|---|---|
| Digestive Fluid, undiluted, | | ·192 grms. |
| Do. | with Water, | ·192 grms. |
| Do. | with Mixed Tea, | ·226 grms. |
| Do. | with Chinese Tea, | ·272 grms. |
| Do. | with Indian Tea, | ·318 grms. |
| Do. | with Green Tea, | ·413 grms. |
| Do. | with Tea with Soda, | ·259 grms. |
| Do. | with Maté, | ·246 grms. |
| Do. | with Coffee, | ·269 grms. |
| Do. | with Coffee with Chicory, | ·336 grms. |
| Do. | with Arab Coffee, | ·297 grms. |
| Do. | with Cocoatina, | ·237 grms. |
| Do. | with Cocoa, | ·53 grms. |
| Do. | with Chocolate, | 1·059 grms. |
| Do. | with Cocoa Nibs, | ·297 grms. |
| Do. | with Guarana, | ·374 grms. |

Having thus examined the results of the digestion of the beverages alone, the results of their action on the digestion of meats come next to be studied, and these are embodied in Tables B and C. Table B gives the actual weights, obtained as above detailed by the standard process, after the subtraction of the beverage factors; while in Table C the results are reduced to percentages, that of digestion in presence of water being taken as 100 per cent.

# Table B.

## Results of the Peptone Experiments.

| | | Boiled White of Egg. | Roast Beef. | Boiled Salt Beef. | Roast Lamb. | Boiled Ham. | Roast Fowl. | Boiled Fish. | Bread. |
|---|---|---|---|---|---|---|---|---|---|
| Digestive Fluid, undiluted, | | ·376 grm.[a] | ·771 grm.[b] | ... | ... | ... | ... | ... | ... |
| Do. | with Water, | ·434 grm.[a] | 1·042 grm.[b] | 1·121 grm. | ·649 grm. | ·897 grm. | ·92 grm. | ·792 grm. | ·446 grm. |
| Do. | with Mixed Tea, | ·398 grm. | 1·005 grm.[b] | 1·063 grm. | ·574 grm. | ·861 grm. | ·614 grm. | ·699 grm. | ·398 grm. |
| Do. | with Chinese Tea, | ·317 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Indian Tea, | ·197 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Green Tea, | ·224 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Tea with Soda, | ·421 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Maté, | ·359 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Coffee, | ·462 grm.[a] | 1·03 grm.[c] | 1·047 grm. | ·454 grm. | ·901 grm. | ·798 grm. | ·763 grm. | ·26 grm.[d] |
| Do. | with Coffee and Chicory, | ·273 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Arab Coffee, | ·295 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Cocoatina, | ·39 grm. | ·918 grm.[c] | ·974 grm. | ·5 grm. | ·798 grm. | ·612 grm. | 1·107 grm. | ·389 grm. |
| Do. | with Cocoa, | ·164 grm. | ·815 grm.[c] | ·973 grm. | ·542 grm. | ·628 grm. | ... | ·812 grm. | ·33 grm. |
| Do. | with Chocolate, | – ·005 grm. | ... | ·588 grm. | ·407 grm. | ·648 grm. | ·795 grm. | ·7 grm. | – ·058 grm.[d] |
| Do. | with Cocoa Nibs, | ·248 grm. | ... | ... | ... | ... | ... | ... | ... |
| Do. | with Guarana, | ·224 grm. | ... | ... | ... | ... | ... | ... | ... |

Results marked (a) belong to a different set from the rest of the experiments with White of Egg.

Results marked (b) belong to a different set from those marked (c) in the experiments with Roast Beef.

(d) Charring took place in the evaporation of the dialysiate in these cases.

## Table C.

### PERCENTAGE RESULTS OF THE PEPTONE EXPERIMENTS.

| | Boiled White of Egg. | Roast Beef. | Boiled Salt Beef. | Roast Lamb. | Boiled Ham. | Roast Fowl. | Boiled Fish. | Bread. | AVERAGE. |
|---|---|---|---|---|---|---|---|---|---|
| Digestive Fluid, undiluted, | 86·6 % | 74 % | ... | ... | ... | ... | ... | ... | 80·3 % |
| Do. with Water, | 100 % | 100 % | 100 % | 100 % | 100 % | 100 % | 100 % | 100 % | 100 % |
| Do. with Mixed Tea, | 91·7 % | 96·4 % | 94·8 % | 88·4 % | 95·98 % | 66·73 % | 88·26 % | 89·23 % | 89·06 % |
| Do. with Chinese Tea, | 72·8 % | ... | ... | ... | ... | ... | ... | ... | 72·8 % |
| Do. with Indian Tea, | 45·4 % | ... | ... | ... | ... | ... | ... | ... | 45·4 % |
| Do. with Green Tea, | 51·6 % | ... | ... | ... | ... | ... | ... | ... | 51·6 % |
| Do. with Tea with Soda, | 97 % | ... | ... | ... | ... | ... | ... | ... | 97 % |
| Do. with Maté, | 82·7 % | ... | ... | ... | ... | ... | ... | ... | 82·7 % |
| Do. with Coffee, | 106·45 % | 98·8 % | 93·4 % | 69·95 % | 100·44 % | 86·74 % | 96·33 % | 58·27 % | 88·79 % |
| Do. with Coffee and Chicory, | 62·9 % | ... | ... | ... | ... | ... | ... | ... | 62·9 % |
| Do. with Arab Coffee, | 67·97 % | ... | ... | ... | ... | ... | ... | ... | 67·97 % |
| Do. with Cocoatina, | 85·25 % | 88·09 % | 86·88 % | 77·04 % | 88·96 % | 66·52 % | 139·77 % | 87·22 % | 89·96 % |
| Do. with Cocoa, | 37·78 % | 78·2 % | 86·8 % | 83·35 % | 70 % | ... | 102·5 % | 73·76 % | 76·05 % |
| Do. with Chocolate, | minus result. | ... | 52·45 % | 62·71 % | 72·25 % | 86·41 % | 88·38 % | minus result. | 72·44 % |
| Do. with Cocoa Nibs, | 78·8 % | ... | ... | ... | ... | ... | ... | ... | 78·8 % |
| Do. with Guarana, | 57·14 % | ... | ... | ... | ... | ... | ... | ... | 57·14 % |

Before studying the tables, there are a few irregular results to be noticed. Thus, in Table B two results are seen to be minus quantities—viz., that of the digestion of egg with chocolate, and of bread with chocolate. Here the factor for chocolate was greater than the result of the digestion of these foods in the presence of the beverage; and, on subtracting the factor, a minus quantity is therefore left. Charring during evaporation appeared to be the cause of this in the case of bread; and in that of egg, probably too little of the suspended solid matter of the beverage was present in the 25 c.cs. of chocolate digested with the egg. In Table C four results are seen over 100 per cent.—egg and ham, with coffee, and fish with cocoa, and with chocolate. In the case of coffee, the "time" experiments will be found to give confirmatory results; but in the cases with cocoa and chocolate, the results are doubtful, and may have been caused by the loss of inorganic matter from decrepitation during combustion (though this was conducted in a covered crucible), or from some other error in the process followed.

Examining Table B, the highest result of the digestion of any meat is that of salt beef in presence of water, with 1·121 grms., or 22·42 per cent. of the meat used; and the lowest, excepting the minus results, is egg in presence of cocoa, with ·164 grm., or 3·28 per cent. of the meat used.

In Table C, the percentage results for each meat are reduced to an average for that meat, and shown in a separate column. The highest average for the five principal beverages is that for cocoatina, 89·96 per cent.; and the others follow—tea, 89·06 per cent.; coffee, 88·79 per cent.; Epps's cocoa, 76·05 per cent.; and chocolate, 72·44 per cent. Of the nine less important beverages, tea infused with water made alkaline with carbonate of soda gives the highest result, with 97 per cent., and Indian tea the smallest, with 45·4 per cent. From these averages it would seem that, of the five principal beverages, cocoatina has the least effect in reducing digestion, and chocolate the greatest; but on careful examination it will be found that the high position of cocoatina depends on the fact that, while it has no very high results, none are very low; while tea, and especially coffee, have some very high results, but also some very low, which reduce their average.

The higher set of results in the case of tea contains the cases of roast beef, 96·4 per cent.; salt beef, 94·8 per cent.; ham, 95·98 per cent.; and white of egg, 91·7 per cent.; and the lower set, fowl, 66·73 per cent.; lamb, 88·4 per cent.; fish, 88·26 per cent.; and bread, 89·23 per cent. With coffee, the higher set contains white of egg, 106·45 per cent.; ham, 100·44 per cent.; roast beef, 98·8 per cent.; fish, 96·33 per cent.; and salt beef, 93·4 per cent.; and the lower set, bread, 58·27 per cent.; lamb, 69·95 per cent.; and fowl, 86·74 per cent. Now, the only case not in the same class in both series of results, is fish; excluding this, foods may be divided, with regard to the action of tea and coffee on their digestibility, into two classes, a class less affected in digestion,—viz., white of egg, ham, salt beef, and roast beef; and a class more affected,—viz., lamb, fowl, and bread. It is to be observed that three of those in the former class,—viz., egg, salt beef, and ham, are the usual occupants of the breakfast-table, and this is the only meal at which custom seems to have sanctioned the admixture of animal food and infused beverages.

Comparing these two beverages, the comparison is in favour of coffee, so far as its action on this group of meats under the circumstances of the standard process is concerned, for coffee appears positively to assist the digestion of egg and ham, and its retarding effect on the digestion of roast beef is less than that of tea, though it is greater in the case of salt beef. In the lower set of results, coffee is seen to have less effect on the digestion of fowl than tea, but more on that of bread and lamb. In the case of bread, however, it is seen from the note to Table B, that the bread with coffee was one of the two experiments, which were charred in evaporation, and hence this result is smaller than it ought to have been. The action of both these beverages on the digestion of bread is to be noticed, but it must be remembered that it is only their action on the digestion of the nitrogenised elements of bread, which is referred to, and that any action they may have on the digestion of the starchy constituents, has yet to be investigated; and if these beverages interfere little with the digestion of the albuminoids of the breakfast meats, or even assist it, their action in retarding the digestion of the albuminoids of bread may be neglected.

In the case of cocoatina, though its average is above that of tea or coffee, it will be found that the greater number of its individual results are less than those of these two beverages, and the division of meats into two classes is less evident in the case of this beverage, the higher class here consisting of fish, 139·77 per cent.; egg, 85·25 per cent.; roast beef, 88·09 per cent.; salt beef, 86·88 per cent.; ham, 88·96 per cent.; and bread, 87·22 per cent.; and the lower class, lamb, 77·04 per cent., and fowl, 66·52 per cent. The higher set differs from that of coffee by containing bread, and from that of tea by containing bread and fish.

Epps's cocoa and chocolate throughout give smaller results than any of the above, and no such grouping, as in the cases of tea and coffee, can be detected. The higher class in the case of Epps's cocoa contains salt beef, 86·8 per cent.; lamb, 83·35 per cent.; and fish, 102·5 per cent.; and the lower class, roast beef, 78·2 per cent.; ham, 70 per cent.; bread, 73·76 per cent., and white of egg, 37·78 per cent. In the case of chocolate, the higher set contains fowl, 86·41 per cent.; and fish, 88·38 per cent.; and the lower, salt beef, 52·45 per cent.; lamb, 62·71 per cent.; and ham, 72·25 per cent., the minus results being omitted.

Turning next to the nine less important beverages only subjected to experiment with white of egg, the results vary from the tea with soda with 97 per cent., the highest per centage under 100 per cent., down to Indian tea with 45·4 per cent. The harsh flavour of Indian tea has gained for it a reputation for astringency, which is confirmed by this result. The addition of chicory appears to rob coffee of its power of assisting the digestion of white of egg, the result in this case being 62·9 per cent.; and the same is true of coffee when prepared by the Arab method, which gave 67·97 per cent. as its result.

The results of the time experiments are shown in Table D. The process in these experiments was the "standard process," with the following exceptions:—(1) The process was only followed as far as the end of the digestion, no dialysis being necessary; (2) the quantity of meat (white of egg hard boiled) used was only ·5 grms., and the meat was placed in the convection tube and retained there by a piece of coarse net tied over the mouth of the tube; (3) to each 75 c.cs. of liquid, 1 c.c. of 3·65 per cent. solution of hydrochloric acid was added every hour.

### Table D.

PERCENTAGE DIGESTIVE POWERS OF MIXTURES OF DIGESTIVE FLUID AND BEVERAGES DEDUCED,

A. FROM TIME EXPERIMENTS;
B. FROM PEPTONE EXPERIMENTS WITH WHITE OF EGG;
C. FROM AVERAGE OF PEPTONE EXPERIMENTS.

| | A | B | C |
|---|---|---|---|
| Digestive Fluid, with Water, | 100 per cent. | 100 per cent. | 100 per cent. |
| Do. with Mixed Tea, | 89·26 per cent. | 91·7 per cent. | 89·06 per cent. |
| Do. with Coffee, | 115·02 per cent. | 106·45 per cent. | 88·79 per cent. |
| Do. with Cocoatina, | 72·04 per cent. | 85·25 per cent. | 89·96 per cent. |
| Do. with Cocoa, | 89·26 per cent. | 37·78 per cent. | 76·05 per cent. |
| Do. with Chocolate, | 76·33 per cent. | „ | 72·44 per cent. |

The figures in Table D, column A, are the percentage results of these experiments, compared with the result where water was the beverage, as 100, and deduced by inverting the figures showing the percentage time required for complete solution; for while the amount of peptones produced from fixed quantities of meat and digestive mixture vary directly as the strength of the mixture, the time required for complete solution of the meat varies inversely as the strength. In column B of the same table are shown the results of the peptone process with white of egg, and in column C the average results with all meats as shown in Table C.

(*To be continued.*)

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## CORRESPONDENCE.

### THE EDINBURGH MEDICAL SCHOOL.

*To the Editors of "The Edinburgh Clinical and Pathological Journal."*

WITH the new Session, the University Medical School will start, for the first time for some years past, with something approaching its full environment and equipment. All the professors whose classes are to find a home within the new buildings will take up work in their magnificent new rooms this winter, or, at least, in the ensuing summer. To graduates who have left the School within the past three or four years, it will be impossible to realise the character and extent of the structural changes which have been effected since their departure. Even for those who are still on the spot, and can see these for themselves, it will not be possible yet awhile to estimate fully the great effect which these changes must have in the way of making the teaching carried on in the School more thorough and efficient. Of the departments which are to be lodged in the new buildings in Teviot Row, those of Anatomy, Surgery, Practice of Physic, Physiology, Pathology, and Midwifery, have already had time to settle down in their respective suites of rooms round about the south quadrangle. This winter, Chemistry and Materia Medica, and, later on in Session 1883-84, Medical Jurisprudence, will come into possession of the buildings round about the north quadrangle. In these, as in the departments previously occupied, the arrangements are such as would more than surprise past students, who were perforce content to revisit twice or thrice daily the same stuffy class-room, ineffectually disguised under several aliases, and who had to prosecute their practical work in the "close confinement" of odd nooks and corners of rooms. Not only has each department its own class-room—airy, lightsome, and commodious,—but a series of rooms specially designed and fitted up under the eye of each professor for carrying on the work of his particular department. To instance the department of the Professor of Materia Medica, the class-room has appended to it two floors of apartments, which have been set apart as students' reading, practical, and tutorial rooms, with laboratories and every requisite for the conduct of research, both by the professor himself and any others about the School who may desire to enter upon it.

These gratifying structural changes in the school have given opportunity and room for a marked development of the tutorial side of the teaching; and, in this respect, the arrangements for the new session will be in advance of those of previous years. The changes in the teaching staff are all in this class. Thus, in the department of Practice of Physic, Dr. Philip will take the place of Dr. Ritchie, as assistant to Professor Grainger-Stewart. Then, the appointment of Dr. Matthew Hay to be Professor of Medical Jurisprudence at Aberdeen has left a vacancy with Professor T. R. Fraser, which the professor has not yet filled up. In the Infirmary, Dr. J. M. Cotterill, long clinical tutor to Professor Annandale, has been appointed an assistant surgeon. Dr. James Bennet succeeds Dr. Cotterill as clinical tutor. The teaching power of the school was recently added to by the appointment of Dr. Argyll Robertson to a University Lectureship on Ophthalmology, and of Dr. P. M'Bride to a ward in the Infirmary for the special treatment of ear diseases. Dr. M'Bride has, besides, instituted a regular course of lectures on his specialty. In the extra-mural branch of the school, no change has taken place for this session in the list of lecturers. The only change of any kind shown by inspection of the list is that Dr. Wyllie has removed from Minto House to 11 Nicolson Square, and Dr. Drinkwater from Marshall Street to 41 Chambers Street.

F. A. MACIVER.

# REVIEWS.

**The Science and Art of Midwifery.** By W. T. Lusk, M.D., Professor of Obstetrics and the Diseases of Women in the Bellevue Hospital, Medical College, N.Y. London: H. K. Lewis. 1882.

THE publication of this work by an accomplished obstetrician like Dr. Lusk, is useful not only on account of the intrinsic value of the production, but as enabling British obstetricians to study the subject as it presents itself to an American specialist. We do not, however, regard Dr. Lusk's book as a native American production. It is, strictly speaking, more the work of an American deeply imbued with German teaching, even to the almost entire exclusion of British observations. In the first chapter, the anatomy of the organs is given,—on the whole accurately, though rather briefly. Occasionally we have a statement open to doubt; for instance, "that the columns of the vagina, when turgid with blood, serve to close the vagina;" or a statement too sketchy to be of use to the student, as when Dr. Lusk says: "Leopold claims for this mesh-work in the uterus the significance of lymph-sinuses." Whether Leopold is right or wrong, this sentence gives the student what he has more than enough of,—vague, indefinite knowledge. Sometimes a diagram is introduced without any explanatory statement as to it in the text, and with an insufficient one attached to it. Fig. 8, showing Bandl's drawing of his idea of the position of the os internum, is an instance of this. The chapters on the development of the fœtus and fœtal membranes are good, accurate, and understandable.

The chapters on the mechanism of labour are much more in accordance with modern views than one usually finds. The absurd spine theory is not wholly thrown over, Dr. Lusk being evidently still in a transition stage; and in regard to flexion, he holds that at the beginning of labour the chin and sternum are not in apposition. Now, while there is some proof that they are in apposition, there is none that they are not. The explanation of the cause of internal rotation is better than usual, as Dr. Lusk recognises the effect of the elastic recoil of the pelvic floor. Some statements, however, are made for which there is no proof—viz., that the head acts as a lever, that the backward pressure applied to the frontal part of the head works at a greater mechanical advantage than that directed against the occiput, and so on. Of course no man can exactly explain rotation; but why should Dr. Lusk not say so? The whole subject of the mechanism of labour is at present, however, in an unsatisfactory condition.

In the description of the treatment of an ordinary labour there is little that differs from the British teaching. The armamentarium advised as necessary is not so extensive as that recommended by some, and does not include the electrical battery, Sim's speculum, volsella, &c., of a few advanced obstetricians. Preservation and guarding of the perinæum is recommended, and the various methods of Goodell, Hohl, and others given. Episiotomy is accurately described as the operation of young practitioners. The risk of laceration of the vestibule by injudicious support is not alluded to, but is not inconsiderable; neither is it mentioned that the perinæum may be ruptured in bringing down the arms in a breech case if the accoucheur attempts to bring them down too soon, and thus passes his hand in too far.

The sections on ligature of the cord are exceedingly good. Late ligature is advocated, and the reason for it well given. The description of the management of the third stage of labour is exceedingly disappointing. There is no rule as to how long one has to wait before trying expression; no statement as to the mechanism of the separation of the placenta and membranes from the uterine wall, and no caution as to the danger of Credé's method.

The statement that "as in ordinary surgical practice anæsthetics are contraindicated by organic affections of the heart and lungs," is not one acted on by Edinburgh obstetricians, at any rate. Does not a woman with heart disease need chloroform to protect her heart from the shock associated with pain even more than a parturient woman whose heart is sound? As to forceps, Dr. Lusk recommends Sir James Simpson's to his students, and is strongly in favour of Tarnier's forceps when the head is high and the cervix sufficiently dilated. Instead of the original Tarnier forceps Dr. Lusk uses a modification of his own, the improvement being in the lock of the traction handle. It is strange, however, that he recommends them not to be used when the head is low. The reason given is that the posterior curve is apt to cut deeply into the posterior vaginal wall. There must be something faulty in the forceps, as in Edinburgh now, the Tarnier's forceps (Simpson's modification) is employed wherever the head lies. Indeed, they bring the fœtal head over a rigid perinæum with a minimum of tear. The Tarnier forceps will probably modify our present ideas as to the treatment of labour in deformed pelves. The fact that the compression they exercise on the head is not increased as the traction is increased, makes their employment in flat pelvis worthy of a fair trial. The chapters on Craniotomy, Cæsarean section, and Gastro-elytrotomy are well done. That on Gastro-elytrotomy is, however, hardly up to the mark, although one would not have anticipated this.

The subject of Eclampsia is thoroughly well considered. The various theories are fairly stated. The Traube-Rosenstein theory is rejected, as it deserves to be, seeing that, according to it, Eclampsia should be the rule in pregnant women, and not the exception. Dr. Lusk evidently favours the view brought forward by Spiegelberg.

The chapters on deformed pelvis, hæmorrhages, and rupture of the uterus, are fully up to modern research, and give the student safe and accurate principles for his guidance.

The able paper on puerperal fever Dr. Lusk read at the Philadelphia International Congress, prepared us to expect that the chapter on this subject would probably be the best in the book. This it certainly is. The results of observers on septic infection are made use of most skilfully. Both the paper already alluded to and the present chapter are valuable contributions to the study of the nature of puerperal fever. The safest obstetrician is certainly the one who believes in the germ theory.

We place this book in a high position among others of the same class. It is scientific in tone, although in some parts too condensed, and not sufficiently definite for the student. In this country, it will not supplant Playfair's well-known work, as the fourth edition of this is well up to date, and better in its practical parts than Lusk's. At the same time, Lusk is more modern and accurate than Playfair in some scientific matters—*e.g.*, the mechanism of labour and deformed pelvis.

D. BERRY HART.

## On Curvatures and Disease of the Spine. By B. E. Brodhurst, F.R.C.S., &c. Third Edition. Churchill, 1883.

WHEN a work such as this reaches its third edition, a review, if it represents professional opinion, cannot but be favourable. In the work before us, Mr. Brodhurst goes over, in succinct but full chapters, the standard views regarding the origin, mechanism, and treatment of scoliosis and the other static spinal curvatures, and follows this up by a description of angular curvature, its diagnosis and treatment. It is largely owing to Mr. Brodhurst that the views he enunciates have become the standard views of British surgeons, and doubtless a careful reader of the work will learn nearly all that is useful to know regarding the diseases it treats of.

But in no department of science does knowledge cease to progress, and we miss in Mr. Brodhurst's book many valuable pieces of information that, should in our opinion, not be omitted from a monograph on spinal curvature. Mr. Brodhurst's views on the cause and mechanism of scoliosis are those that are considered the soundest and truest, but his readers would have been more *au courant* with the day had they been instructed in the muscular theory of Sayre and the developmental theory of Hüter. The researches of Lambl, Neugebauer, and others concerning the strange displacement of the fifth lumbar vertebra, known as spondyl-olisthesis, receive no mention. The pathology, also, is hardly such as would be clear to a student of the present day.

In everything that is practical the remarks of the author are excellent and to the point, and will be endorsed by those of experience in such diseases as being a good *resumé* of what is reliable in treatment. The author condemns, in emphatic terms, the treatment of scoliosis by Sayre's jacket, praising, perhaps too highly, the classical instruments for supporting the curves. He quotes but to contradict Mr. Adams's opinion, that where marked scoliosis exists it is incurable;—we incline to think that the greater number of surgeons would rather agree with Mr. Adams, and that exceptional cases such as Mr. Brodhurst quotes do not invalidate his dictum. He has no faith in Barwell's sloping seat, or in any form of bandage or suspension. In this he is in accord with other surgeons.

Even the chapter on treatment, however, is not written up to date. No notice is taken of Hüter's views of treatment, now probably the standard ones in Germany, nor of Busch's sling, an undoubted improvement on all that has preceded it.

Regarding the chapters on angular curvature, remarks similar to the above are called for. Excellent and practical so far as they go, they leave much untold that the modern surgeon should know. The pathology is not that of to-day, and the treatment—*e.g.*, of spinal abscess,—is behind date. One example will suffice: In the treatment of psoas abscess, no mention is made of the antiseptic opening above the crest of the ilium, one of the greatest steps in advance that ever was made in the treatment of spine disease.

Alexander Ogston.

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## The Ætiology of Erysipelas, and its Inoculation in Cases of Malignant Disease. (Die Ætiologie des Erysipels.) By Dr. Fehleisen, Assistant to Surgical Klinik in Berlin. Berlin, 1883.

THE author, after discussing at length the derivation of the name "Erysipelas," defines the views of Hippocrates and Galen as to its exact significance; and then passes in review the opinions of other writers on the subject of infective diseases, specially contrasting those of Nægeli and Henle.

The former held that various micro-organisms could, under favourable circumstances, change not only their morphological, but also their physiological and pathogenic peculiarities; one species being thus capable of producing widely varied morbid symptoms.

This chimerical theory, due probably to the bewildering results obtained from imperfect methods of research, is accredited by Dr. Fehleisen with having considerably postponed the discoveries which a more modern period has yielded in this department of science.

Equally strong is his appreciation of Henle's view of the question as shown in his "Pathological Observations" (Berlin, 1840), from which he quotes at length. One sentence is worthy of translation: where the disease appears with "characteristics so absolutely specific, there we have the right to look upon the cause as something constant and unchangeable; in fact as a species."

In the main, Henle's view is still held to be absolutely true; one exception is, however, to be noted as regards the pathogenic functions of micro-organisms —viz., in the case of B. anthracis, Touissant and Pasteur have shown that in certain conditions (addition of 1 per cent. carbolic acid, or heating to 55° C.) its virulence is much modified; and this has led to the protective inoculation of animals now so largely carried out in Saxony (at Packisch).

Passing on to his own investigation, Dr. Fehleisen quotes from a former paper of his own on the same subject (*Deutsche Zeitschrift für Chirurgie*, Bd. 16) as follows:—

"The lymphatics of the skin and subcutaneous tissue, specially, however, those in the most superficial layers of the corium, are found filled with chain-like micrococci. In places where their development has been specially profuse, they lie also in the lymph spaces, and in the canaliculi of the rete malpighi. In no case, however, do they intrude into the blood vessels. . . . In the quite freshly affected parts of the skin, in which with the naked eye no change is to be recognised, no tissue reaction is visible. In the immediately contiguous zone, on the contrary, at the sharply-defined boundary of an 'Erysipelas marginatum,' the inflammatory change commences. The tissue of the cutis appears compressed, and along the lines of the coccus-laden lymphatics is a more or less intense small-celled infiltration.

"In still less recently affected parts of the skin the small-celled infiltration alone is to be seen, the micrococci having entirely disappeared."

Following the principle laid down by Koch, the author next tried to obtain a "pure cultivation" of this organism outside the body.

In this he experienced great difficulties—all his earlier attempts failed from the entry of other genera into his cultivating materials.

At length, however, by using a modification of Koch's gelatine, and by imbedding in it small pieces of the affected skin, he succeeded in obtaining a pure culture. In the gelatine it appears as minute white punctiform nodules, which grow and amalgamate slowly to form a delicate white pellicle. At the end of six days the growth of the organism stops. Several generations of pure cultivation were thus obtained. Thus equipped, Dr. Fehleisen inoculated a series of nine rabbits; eight of these suffered from typical erysipelas: redness, heat, and large throbbing vessels in the affected ear, with rise of temperature. In two to three days the process reached the root of the ear, and spread thence over the back. At the end of the second day the ear began to recover its normal colour. After spreading widely over the head and back of the animal the morbid process disappeared. In the eighth rabbit the experiment was varied; the ear being amputated with the Pacquelin's cautery when the process had reached half-way to its root. Twelve hours after the operation the temperature had fallen to normal, and the animal remained in undisturbed good health.

In all the rabbits the illness lasted six to ten days, and in no case was it fatal; a widely different result from that obtained by Ziegler (*Lehrbuch der Patholog. Anatomie*, 2 *Aufl.* 1882) when working with erysipelas in rabbits.

Sections of the amputated ear showed an exactly similar condition to that above described in the human subject.

Coming now to the clinical part of his work, the author says: "Erysipelas is the only disease which, along with the dangers it causes, can also have useful therapeutic results; it can thus be placed, in company with the vaccine fever, as the only infective disease whose artificial production has as yet been indicated from the practitioner's point of view."

As is usual in cases of a new departure, the author has authorities to support him, dating back at least a century and a-half. Referring to modern writers, he says—

"The beneficial influence of erysipelas upon lupus, is thoroughly recognised by a number of reliable and experienced observers, of whom I need only mention Hebra; indeed the fact is incontestible that many growths have been caused to disappear by the action of erysipelas. In this no mistake can arise, for in no other circumstances does absorption of neoplasmata occur."

Previous attempts at the artificial production of erysipelas seem to have been made by Ricord and Dupres in the case of phagedænic sores, and by Busch in a case of multiple lymphosarcomata, in both cases with encouraging results.

The author now relates his own experience in seven cases where inoculation was adopted. The cases are reported in full, each with a temperature chart filled in with the progress of the case. The following is a short summary:—

| Case. | Nature. | Duration of Erysipelas. | Highest Temperature Attained. | Result. |
|---|---|---|---|---|
| 1. | Multiple fibrosarcomata of the skin. | 14 days. | 106·8° F. | Slight shrinking of some of the nodules. |
| 2. | Recurrent carcinoma of mamma. | 15 days. | 104·9° F. | Tumour shrunk, and entirely disappeared. |
| 3. | Recurrent sarcoma of orbit, with affected glands in neck. | 7 days. | 104·5° F. | Tumour unchanged, glands diminished one-half in size. |
| 4. | Recurrent carcinoma of mamma. | 18 days. | 104·8° F. | Tumour reduced half in size. |
| 5. | Lupus of face. | 5 days. | 104·2° F. | Complete cure. |
| 6. | Recurrent carcinoma of mamma. | 13 days. | 104·0° F. | No improvement. |
| 7. | Lupus of face. Immunity having had an attack within three months. | | | |

In no case did a fatal result occur. In the first there was a tendency to collapse about the middle of the attack, which gave rise to anxiety, but was tided over by stimulants. In the sixth case an unilateral pleurisy with effusion was produced, which twice required tapping.

Dr. Fehleisen remarks:—

"It would be premature to pronounce a final opinion as to the therapeutical value of erysipelas on the strength of these limited observations."

He goes on to point out that it was only tried in cases where operation was out of the question, and he ventures to recommend it strongly for such cases.

The condition of the tumour during absorption has only been investigated in one case, that of lympho-sarcoma (Busch's case) (*Berliner Klinische Wochenschrift*, vol. 1866) already mentioned. In that case the examination was made by Rindfleisch, who found the cells of the tumour in a state of fatty degeneration.

The author ventures the theory, that the micro-organisms, invading the tumour, enter its cell elements, and appropriate the nourishment which would otherwise have provided for their growth and multiplication. This is a very pretty theory—a new adaptation of "Set a thief to catch a thief"—but one strangely at variance with a remark of the author's at a previous page, where he specially points out the exaggerated activity of the tissues in the neighbourhood of the micro-organism, from which results the "small celled infiltration." If the process produces no fatty degeneration of the subcutaneous cellular tissues, why should it do so of the much more highly vitalised celullar tissue of the tumour?

Whether the author's theories, however are of practical value or not—for some of his results it must be claimed that they are eminently so—and, considering the trival nature of the risk involved, there can be little doubt that in suitable cases British surgeons should not hesitate to follow his example.

Arthur W. Hare.

## *REPORT ON PATHOLOGY.*

### *RECENT PAPERS.*

1. **Koch.**—On the Cholera Germ. *Deutscher Reichs Anzeiger*, 13th October, 1883.
2. **Virchow.**—On the Relation of Fœtal Rickets to the Production of Cretins and "Dwarfs." *Virchow Arch.*, Bd. 94, Heft 1, October, 1883.
3. **Barling, Gilbert.**—Infiltrating Carcinoma of Breast. *Journal of Anatomy and Physiology*, April, 1883.
4. **Hoyle, W. E.**—Case of Primary Epithelioma of the Lung, with Secondary Deposits in the Kidney, Vertebræ, and Ribs. *Journal of Anatomy and Physiology*, July, 1883.
5. **Thoma.**—Ueber die Abhängigkeit der Bindegewebes-neubildung in der Arterienintima von den Mechanischen Bedingungen des Blutumlaufes. (The Effect of the Closure of the Umbilical Arteries and Ductus Arteriosus upon the Structure of the Wall of the Aorta). *Virchow's Archives*, vol. xciii. September, 1883.
6. **Baumgarten.**—Ueber den Nachweis der pathogishen Bedeutung der Tuberkelbacillen auf anatomisch-histologischem Wege. (The Pathological Bearing of Tubercle Bacilli, from a Histological Point of View.) *Centralblatt für die medicinischen Wissenschaften*, xxi. 42.
7. **Hofmeier.**—Ueber den Einfluss des Diabetes Mellitus auf die Function der weiblichen Geschlectsorgane. (On the Influence of Diabetes Mellitus on the Female Sexual Organs.) *Berliner Klinische Wochenschrift*, xx. 42.

1. **Koch on Cholera Germs.**—Some weeks ago the German Government sent a scientific commission to Egypt to investigate the cholera epidemic which was then raging there. The first official report of the commission, written by

Dr. Koch, has just been published in the official *Gazette* now before us, of which the following is the substance :—

Koch states that when the commission landed in Egypt the epidemic was showing signs of subsidence, and since that was the most unfavourable time to select for investigating the etiology of the disease, it was resolved only to make preliminary investigations in Egypt, which could afterwards be followed out further at some point in Syria in which a fresh outbreak might occur.

A very careful microscopic examination of the blood, vomited matter, and fæces of patients suffering from well-marked Asiatic cholera, at once showed that while the blood was free from micro-organisms, and the vomited matter contained comparatively few, the fæculent matter was loaded with such organisms.

Ten post-mortem examinations were made on well marked cases of Asiatic cholera, and in every case the blood, lungs, liver, spleen, kidneys (the organs where micro-organisms are usually found if present at all) were free from the presence of any organised ferment. Once or twice bacteria were found in the lung, but their shape and position showed that they had nothing to do with the disease, and had only reached the lung by the indrawing of vomited matter.

The intestinal tract, on the other hand, yielded to examination a most important result. There was found in every case (except one in which the patient died of a complication several weeks after the cholera had left him) a peculiar variety of bacterium in the wall of the intestine. These bacteria were rod-shaped—belonging, therefore, to the bacilli—and resembled pretty closely the bacilli of glanders. In those cases in which the intestine appeared to the naked eye to be least affected, it was found that the bacilli had forced themselves into the tubular glands of the intestinal mucous membrane. That their presence there was a source of considerable irritation was shown by the fact that the lumen of the glands was enlarged, and that in their interior there were to be seen numerous multi-nucleated round cells. In many cases the bacilli had forced their way through the epithelial layer, and were found lying between the epithelium and the basement membrane of the gland. In severe cases, accompanied with hæmorrhagic extravasations into the intestinal mucous membrane, the bacilli were found in enormous numbers, and had penetrated not only into the deeper layers of the mucous membrane, but even as far as the muscular coat of the intestine. These changes were found to the greatest extent at the lower portion of the small intestine. There was no question here of putrefaction, which might have given rise to similar appearances, for the autopsies were performed very soon after death. Dr. Koch states that he found the same condition more than a year ago in the intestines of cholera patients sent to him from India, but he had questioned the value of the observation owing to the possible presence of putrefaction.

The number of post-mortem examinations was small, but since these bacilli were found in every fresh case examined, and since they were not to be found in the intestines of many other persons who had died of other diseases, it cannot be doubted that they have some connection with cholera. Koch, however, carefully guards this statement by observing that it must not be concluded that these bacilli are the cause of cholera. It may indeed be the opposite, the cholera process producing such a lowering of the vitality of the intestine as to make it possible for some of the many organisms contained in fæculent matter to attach themselves to and force their way into the intestinal tissues.

In order to determine which of these two theories was correct, it would be necessary to isolate these bacilli, to make a pure cultivation, and then to inoculate some animal, and thereby reproduce the disease. All attempts made by the Commission in this direction were, however, unsuccessful. Many experiments have been already made in this direction by other experimenters upon rabbits, guinea-pigs, dogs, cats, monkeys, pigs, rats, &c., and almost invariably without success. The only observation which appeared in any way to succeed was that of Burdon-Sanderson, who found that mice fed upon choleraic fæces took diarrhœa and died. The correctness of this observation has, however, been denied by other experimenters. The Commission therefore repeated this observation upon mice (as well as upon other animals), varying the conditions in every possible way, but entirely without effect. Pure cultivations of these bacilli were also tried, being sometimes administered to the animals by the mouth, sometimes by inoculation, but although in the latter case septic poisoning was once or twice produced, in no single instance did any choleraic symptoms show themselves.

Dr. Koch thinks it may be taken to be certain that in the very numerous experiments made upon these animals at least some of the cholera products must have contained the poison, and he, therefore, concludes that either the animals selected were not those liable to take the disease, or that the proper method of communicating the poison has not yet been discovered. There is, however, another possible explanation of the failure of these experiments. It is well known that in any locality where a cholera epidemic occurs the epidemic ceases long before every individual is attacked, although the whole town is saturated, so to speak, with the infective material. This is only to be explained on the hypothesis that towards the end of the epidemic the poison loses activity and becomes uncertain in its action. Now, when men who are so liable to it escape cholera at the end of the epidemic, it is hardly to be expected that animals which have not yet been shown to be subject to the disease should take it as the result of inoculation. It is quite possible, Koch thinks, that under more favourable circumstances—*i.e.*, at the commencement of an epidemic,—inoculation of animals with these bacilli might be successful in producing cholera.

In order that the disease might be studied in a more active state, Koch suggests in this letter that the Commission might extend its observations to the cholera as it shows itself in India; and it is notified in the official paper from which this abstract has been made, that the Commission has been directed to repair to Bombay for that purpose. J. GRAHAM BROWN.

2. **Virchow on the Relation of Fœtal Rickets to Cretinism.**—He points out that on the Kerenzer Alp there is a class of dwarfs resembling cretins in their facial and cranial development, but differing from them as regards a greater endowment of the mental faculties. He refers this condition to fœtal rickets, and points out that in these dwarfs, as there is no curving of the bones, this explanation is apparently contradicted; but only seemingly so, as the pathological processes of fœtal rickets are not concerned in the production of increased cartilage and ossific matter at the end of long bones, &c.; but rather in a process by which the cartilage becomes prematurely aged, completing the full growth of the bones at once, and in its old age contributing little to their further development.

Thus it is that these pseudo-cretins are dwarfish owing to a too premature ossification of their long bones, and their features are cretin-like owing to an arrest in the growth of the basi-cranium, or possibly to an ossification of the cranial sutures.

Virchow firmly believes that cretins and these pseudo-cretins are produced by the same conditions,—namely, a modified form of rickets occurring in utero,—but in cretins being peculiar in being limited to certain localities, and being complicated by cerebral phenomena. He also remarks in passing that he does not regard hindrance in the growth of the basi-cranium as being the only cause necessary for the production of a true cretin, and offers his remarks as a stimulation to further research.

A. M. ADAMS.

3. **Barling on Carcinoma of the Breast.**—The patient, a female aged forty-six, married four months before admission to the hospital, was suffering from painful enlargement of the breast, which "was smooth and elastic," and "no tumour could be defined in it; the skin was red and œdematous, adherent over a small patch towards the outer part, the nipple was contracted, and the whole breast moved freely on the deep tissues." Glands in the axilla slightly enlarged. The tumour was removed, but there was soon a recurrence along the whole margin of the wound, the growth "extending rapidly over the chest-wall, the whole presenting a brawny œdematous condition, with a dusky redness of the overlying skin." On microscopic examination a true cancerous structure is seen in which the alveoli are comparatively narrow, but the epithelioid cells are of considerable size. The amount of stroma varies very greatly at different points. The peculiarity here, as Mr. Barling points out, appears to be the simultaneous affection of such a large area of tissue by the cancer growth and the rapid and extensive recurrence. He lays special stress upon the age and recent marriage of the patient.

4. **Hoyle on Epithelioma of the Lung.**—In this paper the writer describes an extremely rare condition—primary squamous epithelioma of the lung apparently affecting not the epithelial elements so much as "the fibrous tissue lying between the cartilaginous rings of the bronchi and the lung parenchyma." The bronchial glands remained unaffected. The structure of the tumour was that which is met with in the true squamous epithelioma, and well developed "cell nests" were present in considerable numbers both in the primary and secondary growths. No trace of an ulcer or cicatrix could be found in any of those external positions which are most frequently affected by the squamous epithelioma. The paper is exceedingly valuable in that it may throw some light on the method of development of these epitheliomas.

G. SIMS WOODHEAD.

5. **Thoma on the Mechanical Conditions of the Blood-Stream.**—This is the first of a series of contributions by Dr. Thoma on the relationship of the formation of connective tissue in the intima of vessels to the mechanical conditions of the blood-stream.

Dr. Thoma's investigations were made with reference to the question whether the changes, such as are found in the walls of the renal arteries and their branches in granular contracted kidney, are due to alterations in the capillary areas supplied by them, or *vice versa*, or whether the same cause produces both arterial and capillary changes.

He was induced to look upon the aorta as a favourable field for the investigation of this subject, from the fact that in the last week or two of intra-uterine life the umbilical arteries are by far the most important branches of the abdominal aorta, and that, therefore, their comparatively rapid closure after birth causes a disproportion between the capacity of the aorta and its branches.

When the placental circulation ceases, of course a large part of the capillary area supplied by the aorta is shut off, and the blood-stream in the aorta slowed, the extra blood required for the supply of the abdominal organs being far from compensatory. There is no slowing, however, of the blood current in the ascending aorta and arch, the closure of the ductus arteriosus having cut off the supply of blood from the right ventricle to the descending aorta. The current is rather increased, and the aortic arch grows proportionately as fast as the vessels at the root of the neck, and more quickly than the abdominal aorta.

*A priori* one would, therefore, expect to find the effects of the slowing of the blood current upon the aortic wall, not in the ascending aorta and arch, but in the thoracic and abdominal aortæ, in the common iliacs, and in the internal iliacs, but not in the external iliacs. The ligamentum arteriosum forms the boundary above, between the affected and unaffected portions of the aorta.

Dr. Thoma examined pieces of the aorta and its branches in cases at various ages, from fœtal to adult life. In a fœtus in the twenty-third week of intra-uterine life, he found the intima in the aorta and its branches to consist of a single layer of endothelium lying upon an internal elastic lamina, which was sometimes split into several layers, especially in the arch of the aorta. This elastic lamina was only absent in the ascending aorta up to the level of the innominate artery, and in the umbilical arteries, only here and there were there a few elastic and muscular elements underlying the endothelium, and it was only in the positions where branches were given off that the muscular and elastic bands were regularly found that one always finds at a later period of life in the whole of the aorta.

After birth, these elastic and muscular elements between the endothelium and elastic lamina grow only in proportion to the other tissues; but, in the first week of extra-uterine life, there appears in that position, in the portion of the arterial tract between the ligamentum arteriosum and the umbilical arteries, a new tissue like hyaline connective tissue.

Dr. Thoma does not consider the mere fact that the new tissue has a peculiar appearance, and appears first after birth as proof that it is due to the interruption of the placental circulation; but he thinks its position in the vessels convincing. He draws attention most especially to the great thickness of the intima in the internal iliacs as compared with that of the external iliacs, the former being of considerable thickness in a specimen taken from a girl four years of age, while the latter consisted merely of endothelium and internal elastic lamina, and was with difficulty recognised with a magnifying power of twelve diameters.

These results, Dr. Thoma considers, support the hypothesis that in granular contracted kidney the endarteritic process in the renal arteries is due to a diminution in the capillary area supplied by them. In this condition the first change in the kidney is, he says, an increased permeability in the walls of the small vessels, especially in the glomerular tufts, causing some resistance to the blood-stream on account of increased friction. At the same time, new connective tissue forms in the framework of the organ, the contraction of which causes not only compression of many tubules and destruction of their endothelium, but also obliterates large numbers of capillaries. As a result of this, the renal arteries become relatively large in proportion to the capillary area they supply, and changes take place in their walls similar to those occurring in the aorta after closure of the umbilical arteries.

Dr. Thoma acknowledges that this theory concerning contracted kidney is not far removed from that of Cohnheim, and he does not deny that it presents some difficulties, and does not explain the consecutive hypertrophy of the heart and many other appearances accompanying this condition.

CHARLES KENNEDY.

**6. Baumgarten on Tubercle Bacillus.**—In opposition to Klebs's position of indecision as to the relative potency of Bacillus or Micrococcus in the production of tuberculosis, and in support of the specific value of the former, Baumgarten records the results of a series of inoculation experiments.

Equal pieces of tubercular tissue containing bacilli were inserted into the upper half of the aqueous chamber of the eyes of several rabbits. The organs thus treated were then extirpated at varying intervals of time, and the bulbs subjected to examination. In the first day or two, apart from the necessary changes following the operation, no alteration was detected. During the second day, however, and becoming more evident in succeeding days, there was observed a numerical increase in the bacilli of the enclosed tubercular tissue. This increase which developed rapidly was followed by a gradual infiltration by the bacilli, first of the granular tissue round the foreign body, and then of the adjacent iris and cornea. By the fifth day, scattered bacilli were found in these tissues, both free in the intercellular spaces and within the cells, while, apart from their presence, not the slightest histological change could be detected. On the sixth day, the bacilli had become very numerous, and the only alteration in the tissues consisted in the appearance, round the larger bacillus masses, of newly-formed cells, endothelioid and epithelioid in character. No other corpuscular elements were discoverable in the diseased area. Each succeeding day showed an advance in numbers and in distribution of the bacilli. The infiltrated parts furthest from the primary seat of infection continued to show little textural change; but where the bacilli were more closely aggregated, signs of commencing tubercle in the form of collections of epithelioid cells were observed, with a gradual transition to typical tubercle. The development of these always followed the lines of advance of the bacilli. By the tenth or eleventh day, the presence of disseminated tubercle in the cornea and iris was visible to the naked eye.

In consonance with these results was the development of secondary tubercle in distant organs. The author examined the kidneys at the commencement of the fifth week, and found that the glomeruli of the macroscopically unaltered organ were more or less abundantly invaded by—in some cases, as it were, injected with—tubercle bacilli. Where the bacilli had wandered into the neighbouring parenchyma, evidence of commencing metastatic tubercle was discoverable.

As the result of these experiments, Baumgarten maintains that the position occupied by Koch and himself is that alone tenable. To those who suggest the possibility of the introduction, along with the tubercular matter, of another essential principle, the bacilli being merely accidental accompaniments, he replies that his experiments at least demonstrate that this hypothetical extra-bacillar material is so closely associated with the bacilli as to be only potent along with and through these.

**7. Hofmeier on the Influence of Diabetes on the Female Sexual Organs.**—After remarking on the scarcity of observations with regard to the effects of diabetes mellitus on the female reproductive functions, as compared with the known results in the male, the author records an interesting case, observed by himself. The patient, aged twenty, nullipara, had menstruated regularly and without difficulty since her fourteenth year. Twelve months ago, menstruation ceased. The patient now applied at the Poliklinik, on account of intolerable itching of the external genitals. She seemed otherwise strong and healthy; but the urine was found to contain an abundant quantity of sugar. On examination of the genitals, besides the evidence of pruritus, so commonly present in diabetes mellitus, it was found that the uterus was very small (scarcely 5 cm.), and markedly atrophic. Further examination by Prof. Schroeder (patient being anæsthetised) showed that the ovaries participated in the atrophy. The author thinks all other possibilities were sufficiently excluded to make it proper to regard this condition as the result of diabetes mellitus, analogous to impotence induced in the male.

He explains the fewness of recorded cases by—

(1.) The fact of the comparative infrequency of diabetes mellitus in the female.

(2.) The probability of its relatively more common occurrence among women at or after the climacteric period. In support of this probability, he quotes the statistics of the cases which have come under his own observation. These, while limited in number, give countenance to his views.

R. W. PHILIP.

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## *REPORT ON THERAPEUTICS.*

### *RECENT PAPERS.*

1. **Rossbach.**—PHYSIOLOGISCHE UND THERAPEUTISCHE WIRKUNGEN DES PAPAYOTIN UND PAPAÏN (On the Physiological and Therapeutic Actions of Papayotin and Papaïn.) *Zeitschrift f. kl. Med.*, vol. vi. (1883), p. 527.
2. **Schulz.**—UEBER DIE WIRKUNG DES WASSERFREIEN CHLORALS NACH APPLICATION AUF DIE UNVERLETZE AÜSSERE HAUT UND DIE ALLGEMEINWIRKUNG STARKER HAUTREIZE. (On the Action of Chloral free from Water on the Uninjured Skin, and on the General Action of Strong Cutaneous Irritants.) *Arch. f. exp. Pathologie und Pharmakologie*, vol. xvi. (1883), p. 305.
3. **Kronecker, F.**—UEBER DIE HIPPURSÄUREBILDUNG BEIM MENSCHEN IN KRANKHEITEN. (On the Formation of Hippuric Acid in Man, in Disease.) *Arch. f. exp. Pathol. und Pharmakologie*, vol. xvi. (1883), p. 344.
4. **Briese.**—UEBER DIE WIRKUNG DES NITRUM TANNICUM BEI CHRONISCHER NEPHRITIS. (On the Action of Tannate of Soda in Chronic Nephritis.) *Deutsch. Arch. f. kl. Med.*, vol. xxxiii. (1883), p. 220.

1. **Rossbach on the Actions of Papayotin and Papain.**—In this article, Rossbach gives the results of his observations on the very interesting actions of the substances contained in the juice of the *Carica Papaya*, a tree of which the habitat is South America, but which can be readily cultivated in hot-houses. The milky juice which runs from wounds in the stem of the tree coagulates spontaneously, and separates into two parts,—a clear serum and a solid white precipitate (papayotin). When the juice is treated with alcohol, a digestive ferment, papaïn, is precipitated. So early as 1750, the very remarkable observation was made by Griffith Hughes that the juice of this tree has the property of digesting raw flesh. Only of late, however, have any accurate observations been made, and to control and extend these was the object of experiments recorded in this article. Rossbach found that pieces of the muscle of a rabbit (killed two hours previously), when placed in a five per cent. solution of papay-

otin, were so softened as almost to fall to pieces in half-an-hour. The false membrane of croup was dissolved in two hours. Living mucous membrane was not affected. Warming the solution does not make the digestive process more rapid. He found that the addition of hydrochloric acid or phenol (even to the amount of four per cent.) diminished but did not arrest the digestive action of the ferment.

*The Physiological Action on Living Animals.*—When administered by the mouth to animals, papayotin produced no bad effect. It seemed to stimulate the appetite. When a clear solution of papayotin was injected into the bloodstream in rabbits, it proved very rapidly fatal from paralysis of the heart. Subcutaneously injected, the solution causes no general disturbance, but produces considerable local effects from its digestive action upon the tissues, an abscess very commonly resulting unless the solution were previously sterilised by the addition of carbolic or boracic acid.

*Action of Papayotin on the Lower Organisms.*—When meat is digested in a solution of papayotin, it is found to decompose very rapidly, with the appearance of an unusual number of bacteria. The bodies of animals which have been killed by the intra-venous injection of that substance, decompose much more rapidly than in other forms of death. Rossbach observed in the blood of living animals to which a dose of papayotin had been administered, numerous micrococci, while before the administration the blood had been found to be quite free from such organisms.

*The Therapeutic Action of Papayotin.*—This substance has been recommended for the following affections:—In various skin eruptions it is said to be beneficial, though Rossbach has had no experience in this direction. It has been employed by Péan subcutaneously for the solution and digestion of cancerous nodules in the breast, apparently with success. Rossbach has employed it extensively for the solution of diphtheritic and croupous false membranes, and strongly recommends it. A strong solution ought to be applied every five minutes to the membrane with a brush, or allowed to trickle down the pharynx. Papayotin may be employed to aid gastric digestion, and is a good addition to enemata.

2. **Schulz on the Action of Chloral on the Skin.**—As the result of experimental investigation, Schulz found that when chloroform was applied to the skin of the rabbit, it was followed by no characteristic reflex action, although at times the general action of the drug was seen as the result of absorption. When chloral free from water was rubbed in, there followed in a very short time the symptoms of the general action of that substance upon the system, a more or less deep narcosis setting in. The absorption of the drug was clearly indicated by the appearance in the urine of urochloralic acid. The detection of this substance was performed by evaporating the urine to a syrup, shaking it up with a mixture of alcohol, ether, water, and concentrated sulphuric acid. The ether was then driven off, the remainder neutralised with baryta, the alcohol driven off, and the watery solution which remained, precipitated—first with sugar of lead, and then with acetic acid. The lead precipitate was then decomposed with sulphuretted hydrogen, and to the filtrate sulphate of soda added. A further filtration gave a filtrate containing the soda salt of urochloralic acid, which crystallised in quadrilateral tables which rotated polarised light to the left, and reduced solution of oxide of copper. Schulz further found that the rubbing into the skin of chloral and formic acid was occasionally followed by hæmoglobinuria and nephritis.

**3. Kronecker on the Formation of Hippuric Acid in Disease.**—It has been long known that when benzoic acid was taken into the system, it appeared in the urine in the form of hippuric acid. For a considerable time it was doubtful in what organ this transformation took place; but, some years ago, this point was settled as regards the dog by the experiments of Bunge and Schmiedeberg, who showed that, in these animals at least, the transformation occurred in the kidneys. Subsequent observations of Salomon and Salkowski seem to prove that in rabbits this law did not hold good, for in them traces of hippuric acid were found in muscles, liver, and blood, after the administration of benzoic acid. If, then, there be a difference in this respect between herbivora and carnivora, it is of much interest to ascertain how matters stand in the case of man.

If in man, as in the dog, the hippuric acid be formed in the kidneys, it was to be supposed that in cases where these organs are diseased the formation of hippuric acid would be interfered with, and more or less the unchanged benzoic acid would appear in the urine. With the view of ascertaining this point, Jaarsveld and Stockvis made certain observations, which showed that in healthy men, when 1-2 grms. of benzoic acid was administered, only hippuric acid appeared in the urine. In three cases of cirrhosis of the kidneys the result was the same; but in cases of parenchymatous nephritis, there appeared large quantities of benzoic acid, and in one instance no hippuric acid at all. Since, however, the methods followed by these last-named observers were open to considerable error, it seemed necessary to repeat the observations, using more trustworthy methods, and this has been done by F. Kronecker in the observations recorded in this article.

That no benzoic acid is to be detected in the urine after a dose of that substance, the whole being transformed into hippuric acid, has been already proved by the experiments of Von Schröder and others. It was unnecessary for the author of this article to repeat these experiments. He limited his observations to cases of renal disease, carrying out the experiments as follows: The patient received each evening a dose of 5 grammes of benzoate of soda dissolved in 25 c.cm. of water, and the urine of the twelve hours following the dose was carefully collected and analysed for the presence of benzoic and hippuric acids by the Bunge-Schmiedeberg method.

The results of his observations upon six cases of various forms of Bright's disease went to confirm the conclusions arrived at by Jaarsveld and Stockvis—viz., that lesion of the kidney in man interferes with the transformation of benzoic into hippuric acid. He observed, as the following table shows, a difference between different forms of the kidney affection (as, indeed, one would expect)—a direct degeneration of the parenchyma having much more effect than cirrhosis.

In the following table the results obtained are given, but it is to be regretted that the terms he uses to designate the lesions are not in every case very definite. In each patient the dose of benzoate of soda was in most cases administered on two occasions (I. and II. in table), and an analysis made in each instance. The figures give, in grammes, first of all the absolute quantity of each acid formed, and second, the percentage proportion which each bore to the sum of both.

When the following table is carefully examined, the great importance of these observations will at once be seen.

It appears to the writer of this abstract that, should further observation confirm these results, the physician will have at hand a means of determining in any given case whether the parenchyma of the kidney is affected or not, and gauging with considerable nicety the degree of such affection. Such observation might have a very considerable prognostic value.

| Kidney Lesion. | Absolute Amount. | | Percentage Amount. | | Result of the Case. |
|---|---|---|---|---|---|
| | Hippuric Acid. | Benzoic Acid. | Hippuric Acid. | Benzoic Acid. | |
| Cirrhosis of kidneys, . | I. 0·3100<br>II. 0·0300 | 0·1077<br>0·3124 | 74·21<br>8·8 | 25·79<br>91·2 | Death. |
| Interstitial nephritis, | I. 0·3737<br>II. 0·4057 | 0·1033<br>0·2306 | 78·3<br>63·8 | 21·7<br>36·2 | Death. |
| Acute nephritis. . | I. 0·2990<br>II. 0·4200 | 0·0997<br>0·0330 | 85·7<br>92·71 | 14·25<br>7·29 | Recovery. |
| Acute albuminuria, . | I. 0·5<br>II. not determined. | 0<br>0 | 100<br>100 | 0<br>0 | Recovery. |
| Subchronic nephritis, | 0·6091 | 0·0326 | 94·88 | 5·12 | Incomplete recovery. |
| Hæmorrhagic catarrhal nephritis. | 2·370 | 0·351 | 81·13 | 18·87 | Recovery. |

**4. Briese on the Action of Tannate of Soda in Chronic Nephritis.**—The old practice of giving tannin in Bright's disease in order to diminish the quantity of albumen excreted has of late undergone a modification in consequence of the observations of Lewin, who strongly recommended that the tannic acid should be combined in various ways instead of being administered pure. His method of prescribing the tannate of soda was to mix a ¾-3 per cent. solution of tannic acid with sufficient bicarbonate of soda to render the reaction alkaline. He showed reason for believing that, in this form, the drug was more useful than when administered pure. The value of Lewin's plan was subsequently tested by Ribbert, who compressed the renal arteries in a rabbit for an hour and a-half, and found that the resulting albuminuria could be controlled to a remarkable extent by injection of tannate of soda. The results of these experiments induced Ribbert strongly to recommend tannate of soda in the treatment of nephritis. This method Briese has lately tested on patients under Professor Mosler's care, and he gives the results of his observations in this article. He finds that the tannate of soda is very inequally borne by different patients. While some can receive daily doses for months without any apparent discomfort, others exhibit in a few days symptoms of gastro-intestinal disturbance, vomiting occurring in some instances. In regard to the action of the drug upon the renal lesion, Briese can only speak to its influence in chronic cases, as he had no opportunity of employing it in acute forms of Bright's disease. Ribbert states that the drug has little influence on parenchymatous or interstitial nephritis when the lesion has become fully developed, but that the course of the disease may be somewhat delayed by reason of the action of the tannate in reducing the quantity of albumen excreted. In this, however, Briese's observations do not support him, for he found that the albuminuria was in no way checked by the administration of the drug, but that the patients from day to day became worse, that general œdema occurred, and that uræmia at last set in.

Although these observations are purely negative, they are of considerable interest as such, and the great care and elaboration with which they have been carried out adds much to their value.

J. Graham Brown.

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## *ORIGINAL ARTICLE.*

### ON THE ACTION OF INFUSED BEVERAGES ON PEPTIC DIGESTION.

By JAMES W. FRASER, M.D., C.M. Ed.; M.R.C.S. Eng.

(*Continued from page* 64.)

BETWEEN these three sets of figures the resemblance, in the case of tea, is very close; in that of coffee, the resemblance is close between the two first figures, but the average figure differs from these; and in the cases of the other three beverages, the resemblances are close enough to make this latter set of experiments confirmatory of the former. The average result for coffee is much smaller than the other two results, for coffee appears only to aid the digestion of egg and of ham.

To sum up the results obtained by both processes: it has been shown that all the infused beverages retard the digestion of all meats which were subjected to experiment, with four exceptions—viz., white of egg and ham in presence of coffee, and fish in presence of cocoatina and of cocoa. Under this general rule, some sub-divisions must be noticed—viz., that tea and coffee have much less action on the meats usually eaten at breakfast (egg, salt beef, and ham) than on other meats; that coffee has less retarding action on these meats, as a rule, than tea; that cocoatina has more retarding action than either tea or coffee, and the same sub-division, into a class of breakfast meats, and a class of others is noticed, but less markedly, than with tea or coffee; and that cocoa and chocolate retard the digestion of meats more than any of the former beverages, and no sub-division into two classes of meats is to be noticed in their case.

These being the results, the causes, which led to them, had next to be investigated, and as a first step, the reactions of the beverages were tried with various organic substances, tea, coffee, and Epps's cocoa being alone used. Tea was found to give a precipitate with solutions of albumen, gelatine, peptone, syntonin, and with the artificial gastric juice; coffee gave no precipitates with the gelatine or syntonin solutions, nor with the artificial gastric juice, and only slight precipitates with albumen and peptones; but Epps's cocoa gave precipitates with all the solutions.

The beverages were digested by the standard process without any meat, and it was found that tea after digestion gave no precipitate with any of the solutions except that of albumen, and that the same was true of coffee and cocoa. The digestive fluid, also by itself, gave a precipitate with the albumen solution, and hence, this precipitate may, in the case of the digested beverages, have been due more to the digestive fluid than to the beverage.

The first possible cause is, that the precipitate, formed by the action of the tea or cocoa on the gastric juice, might carry down, entangled with it, some of the pepsin, which might not be entirely redissolved during digestion. As coffee produces no precipitate with the digestive fluid, this cause does not apply to the "coffees."

### Table E.

FACTORS FOR BEVERAGES FILTERED AFTER MIXING WITH DIGESTIVE FLUID, AND THEN DIGESTED.

| | |
|---|---|
| Tea Mixed, . . . . . | ·225 grms. |
| Coffee, . . . . | ·263 grms. |
| Cocoa, . . . . . . | ·412 grms. |

### Table F.

RESULTS OF DIGESTION OF 5 GRMS. WHITE OF EGG, WITH 50 C.CS. OF DIGESTIVE FLUID, AND 25 C.CS. OF BEVERAGE, FILTERED AFTER MIXING.

| | Actual Weights. | Percentages. |
|---|---|---|
| Water, . . . . . . . . | ·434 grms. | 100 per cent. |
| Mixed Tea, . . . . . . | ·34 grms. | 78·34 per cent. |
| Coffee, . . . . . . . . | ·462 grms. | 106·45 per cent. |
| Cocoa, . . . . . . . . | ·547 grms. | 126·03 per cent. |

Tables E and F contain the results of experiments bearing on this cause. In Table E factor experiments are shown, in the performance of which the mixture of beverage and digestive fluid has been filtered before the digestion was performed, thus removing any precipitate formed by the mixture of the beverage and digestive fluid, and along with it, any pepsin entangled in the precipitate. It is seen that the result with tea is very slightly less than the usual "factor," and that for coffee is *unaltered.* Turning to Table F, where the results are given of the digestion of white of egg in presence of these filtered mixtures, it is found, that with tea less white of egg is peptonised where the precipitate formed by the tea from the digestive fluid is filtered off, than where it is allowed to remain, showing that pepsin is entangled in this precipitate, and when it is allowed to remain, is redissolved to act on the meat. In the case of coffee no such action occurs, and in that of cocoa any action depending on the precipitation of pepsin is masked by the removal, at the same time as the precipitate, of the suspended solids of the beverage. (See cause eight.)

The second and third possible causes are the coagulation by the beverages of any albuminoids not coagulated during cooking, and the contraction of the gelatinous elements of the meat, through the action of the beverages, causing pressure on the albuminoids and retarding their solution. The former of these two causes refers to all three beverages, but the latter only to tea and cocoa.

## Table G.

Results of Digestion of 5 grms. of Beef with and without Soaking in Water and Beverages.

| | Actual Weights. | Percentages. |
|---|---|---|
| Digested, without soaking, | ·891 grms. | 100 per cent. |
| Do. after soaking in Water, | ·618 grms. | 69·36 per cent. |
| Do. after soaking in Mixed Tea, | ·746 grms. | 83·72 per cent. |
| Do. after soaking in Coffee, | ·651 grms. | 73·06 per cent. |
| Do. after soaking in Cocoa, | 1·002 grms. | 112·45 per cent. |

The results of experiments relating to these causes are shown in Table G. In this experiment 5 grms. of beef were digested by the standard process in presence of water; a second similar quantity was digested in presence of water, after soaking for six hours in water; a third was digested in presence of water, after soaking in tea; a fourth, in coffee: and a fifth, in cocoa. The actions of the beverages in coagulating albuminoids and gelatine are shown in these cases, not by reducing the amounts peptonised, but by increasing them; for it is evident that the coagulating action of the beverage on the meat soaked in it would only spread a certain depth through the fragments of meat, and thus would protect the albuminoids, in the deeper layers, not rendered insoluble in water by cooking, from solution, while in the case of soaking in water, all soluble albuminoids would be removed. Therefore it may be taken as proved that these two causes bear a part in reducing the amounts of peptones produced from the meats under the ordinary process.

The fourth possible cause—viz., that the volatile oils might reduce the digestive power of the pepsin, was put to the test in experiments, the results of which are shown in Table H, from which it will be seen that all the volatile oils have this effect to some extent, coffee having the most and cocoa the least.

### Table H.

RESULTS OF DIGESTION OF 5 GRMS. OF WHITE OF EGG IN PRESENCE OF WATER, ALONE, AND WITH THE VOLATILE OIL OF 25 C.CS. OF BEVERAGES.

| | Actual Weights. | Percentages. |
|---|---|---|
| Water alone, . . . . . . | ·434 grms. | 100 per cent. |
| Do. with Volatile Oil of Tea, . . | ·266 grms. | 61·29 per cent. |
| Do. with Volatile Oil of Coffee, . | ·234 grms. | 53·91 per cent. |
| Do. with Volatile Oil of Cocoa, . | ·286 grms. | 65·89 per cent. |

The fifth possible cause—viz., that the alkaloids might reduce the proteolytic action, was subjected to experiment, with the results shown in Table I, where it is seen that caffeine and theine appear to increase this action while theobromine alone reduces it.

### Table I.

RESULTS OF DIGESTION OF 5 GRMS. WHITE OF EGG IN PRESENCE OF WATER, ALONE, AND WITH THE ALKALOID OF 25 C.CS. OF BEVERAGES.

| | Actual Weights. | Percentages. |
|---|---|---|
| Water alone, . . . . . . | ·434 grms. | 100 per cent. |
| Do. with Theine, . . . . | ·437 grms. | 100·68 per cent. |
| Do. with Caffeine, . . . . | ·484 grms. | 111·52 per cent. |
| Do. with Theobromine, . . . | ·391 grms. | 90·09 per cent. |

The sixth possible cause is the precipitation, by the tannic acid or its homologue, present in the beverage, of the syntonin and peptones as formed. The results of experiments bearing on this cause are shown in Table J, where it is seen that only in the case of the tannic acid of tea

### Table J.

RESULTS OF DIGESTION OF 5 GRMS. OF WHITE OF EGG IN PRESENCE OF WATER, ALONE, AND WITH THE TANNIC ACID OR ITS HOMOLOGUE OF 25 C.CS. OF BEVERAGE.

| | Actual Weights. | Percentages. |
|---|---|---|
| Water alone, . . . . . . | ·434 grms. | 100 per cent. |
| Do. with Tannic Acid Tea, . . | ·339 grms. | 78·11 per cent. |
| Do. with Caffeo-Tannic Acid, . | ·42 grms. | 96·77 per cent. |
| Do. with Tannic Acid Cocoa, . . | ·418 grms. | 96·31 per cent. |

is any marked reduction produced, showing what was to be expected from the less active nature of the acid in coffee and cocoa—viz., a less interference with digestion.* Here a different action is at work, from that in the case of the beef soaked in the beverages, for the meat was white of egg coagulated by heat, and which could not, therefore, be further coagulated by the tannin.

The seventh and eighth possible causes apply only to the thick beverages, and are, that the amount of albuminoid matter contained in these beverages might cause such a formation of peptones as would, by their presence, check the digestion of other albuminoids; and that they further mechanically clog the mixing action of the convection tube. The effect of the removal of this clogging action is shown by the figures, in Table F, for cocoa filtered after mixing with the digestive fluid, where it is seen that filtered cocoa seems actually to assist the digestion of white of egg.

Summing up the causes determining these actions of the beverages, it may be said that tea, taken as the type of all the "teas," reduces peptic digestion chiefly by its tannic acid, which acts by coagulating the albuminoids, which have escaped the action of cooking, by tanning the gelatinous parts of the meat, and causing them to contract and press on the albuminoids, by removing the pepsin itself entangled in the precipitates formed, and by precipitating syntonin and peptones as formed. The volatile oil of tea also has some action in reducing digestion, and the alkaloid seems to favour the digestion of white of egg; but its action is masked by the opposite action of the tannic acid.

The action of coffee appears to be in the direction of favouring the digestion of ham and white of egg, and this must depend on the power of the alkaloid to assist proteolytic action; but coffee, as a rule, retards the digestion of meats, in which it is a type of the "coffees," and this must be caused by the caffeo-tannic acid, and by the volatile oil.

The action of cocoa is, in some respects, intermediate between those of coffee and of tea. The action of its acid is slightly greater than that of caffeo-tannic acid, but that of the volatile oil is less than that of the volatile oils of tea and coffee. But the suspended matters of the cocoas give rise to the causes, which produce the most important results in these experiments—viz., the accumulation of peptones, and the clogging action of the suspended solids; but neither of these would act in the case of digestion in the stomach, for the peptones would be absorbed as quickly as they were formed, and the clogging would be prevented by the stomach movements.

The action of the presence of infused beverages on certain constituents of the chyme, resulting from the digestion of white of egg, was next examined, with the results shown in Table K, from which it is seen that the consumption of acid in digestion is retarded by tea and increased by cocoa, while coffee is neutral. The albuminoids of another portion of the chyme were precipitated by alcohol, and, in the solution remaining, traces of tyrosine were found in the cases of coffee and of cocoa, while none was present where water or tea were the beverages. Further, it was found, by another set of experiments, that in the production of gas causing flatulency, water and coffee had an equal effect, and tea increased it, when unsalted meat was eaten, but that less flatus was produced from salted meat in presence of tea.

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* The tannic acid of tea is stated by Rochleder to be querci-tannic acid, the same as that present in oak bark.

### Table K.

RESULTS OF DIGESTION OF 5 GRMS. WHITE OF EGG IN PRESENCE OF WATER AND BEVERAGES.

| | Water. | Tea. | Coffee. | Cocoa. |
|---|---|---|---|---|
| Acid, | ·18 grms. | ·195 grms. | ·18 grms. | ·172 grms. |

Portions of roast beef having been digested by the standard process in presence of water, tea, and cocoa, were mounted in glycerine as microscopic objects, and found to present the following characters:—That digested in presence of water showed the transverse striæ of the muscle very faintly, and in many cases the sarcolemma tubes empty; the fibres which remained were breaking up into discs and fibrillæ. The muscle nuclei were very distinct and usually linear, though sometimes granular, and the nerves and vessels were very faintly seen. That digested in presence of tea showed the transverse striæ more distinctly; the breaking up of the fibres not so advanced, and no empty sarcolemma tubes. The nuclei had the appearance of rows of granules smaller towards the ends, which would apparently be caused by the protoplasmic matter, surrounding the true, nuclei being tanned by the action of the beverage and constricting the "nuclei," of the nuclei. In both this and the last case numbers of nuclei were seen floating free; the nerves and vessels were quite distinctly visible.

The case of cocoa was intermediate between that of the other two, the striæ being less distinct, fibrillation and division into discs more advanced, and a few empty sarcolemma tubes to be seen.

All the foregoing experiments were made with the beverages as mere watery infusions, but to ascertain the effect of the usual additions of milk and sugar, further experiments were performed—viz., a set of "factor" and a set of "peptone" experiments, with the results shown in Tables L and M. The factors are seen to be large, as was to be expected from the easily digestible nature of milk and the high diffusibility of sugar. The effect of these additions on the digestion of white of egg in presence of the beverages is very important, for it would appear that they greatly reduce the retarding action of tea on digestion. The opposite result in the case of coffee may have been caused by some error, but that with cocoa is not surprising when it is remembered that the suspended matters of cocoa are the chief agents in retarding digestion in its presence, and when to these is added a suspended coagulum of caseine, further retardation can alone result.

### Table L.

Factors for 25 c.cs. of Beverage, with 5 c.cs. of Milk and 1·25 grms. of Sugar digested with 50 c.cs. of Digestive Fluid.

| | Factors. |
|---|---|
| Water, . . . . . . | 1·345 grms. |
| Tea, . . . . . . | 1·275 grms. |
| Coffee, . . . . . . | 1·413 grms. |
| Cocoa, . . . . . . | 1·677 grms. |

### Table M.

Results of Digestion of 5 grms. of White of Egg in presence of Water, and of the Beverages with Milk and Sugar.

| | Actual Weights. | Percentages. |
|---|---|---|
| Water, without Milk, . . . . | ·434 grms. | 100 per cent. |
| Tea, with Milk and Sugar, . . | ·426 grms. | 98·15 per cent. |
| Coffee, with Milk and Sugar, . . | ·237 grms. | 54·6 per cent. |
| Cocoa, with Milk and Sugar, . . | ·04 grms. | 9·2 per cent. |

This action would most probably not occur in the stomach, where the more powerful mixing would prevent the clogging action of the caseine and suspended solids. Therefore, it is safe to say that if milk and sugar be added to the infused beverages, tea has much less action in retarding digestion, and if these additions have no effect in reducing the retarding action of the other two beverages on digestion, they at any rate increase their nutritive value.

The chief points shown by these experiments may be recapitulated here, it being premised that all must be understood to apply to the experiments as performed by the standard process, or the modifications of it above described.

(1.) All infused beverages retard the peptic digestion of albuminoid food-stuffs, with the four exceptions mentioned above—viz., ham and white of egg with coffee, and fish with cocoatina and with cocoa.

(2.) The digestion of the meats ordinarily used at breakfast—viz., ham, egg, and salt beef, is less retarded by the action of tea or coffee than that of other meats, and the same is true of roast beef; with cocoatina a somewhat similar grouping occurs; but with regard to the other beverages of the cocoa class, no such division into a group of breakfast meats and a group of those less suitable for breakfast use, has been observed.

(3.) That this retarding action is less, as a rule, with coffee than with tea, and less with either than with the beverages of the cocoa order.

(4.) That the retardation is caused (*a*) in the case of "teas" by the tannic acid assisted by the volatile oil, the former precipitating the uncoagulated albuminoids of the food and the syntonin and peptones as formed, tanning the gelatinous constituents of the meats, and removing some of the pepsin by entangling it with these precipitates, and the latter retarding the action of the pepsin. The alkaloid of tea appears to assist digestion, but its action is masked by that of the tannic acid and volatile oil. (*b*) In the case of "coffee," the caffeo-tannic acid and volatile oil retard digestion, and the alkaloid assists it; and therefore in the cases where this beverage assists digestion, the alkaloid must be the active agent in producing the result, and in the cases where digestion is retarded the caffeo-tannic acid and volatile oil. (*c*) In the case of the cocoas, the tannic acid, volatile oil, and alkaloid all assist in retarding digestion; but, under the conditions of the standard process, the clogging action of the suspended matters is the most potent factor.

(5.) In retarding the consumption of acid during digestion, tea has the greatest effect, coffee has no more effect than water, and cocoa increases the consumption.

(6.) Coffee and cocoa cause the peptic digestion of albuminoids to pass on, through the stage of peptones, to the formation of leucine and tyrosine.

(7.) Tea acts on the digestion of fresh meat so as to increase the production of flatus, but has no such effect with salt meat, and coffee has no more effect than water.

(8.) The addition of cream and sugar to the beverages reduces the retarding action of tea on digestion but increases that of cocoa; and coffee appears to have its action reversed by these additions,—but this result is doubtful.

From these experimental results the following practical conclusions are to be drawn:—

If at any meal containing much albuminoid matter, infused beverages be drunk instead of water, the person making this meal must either eat more albuminoid matter or be content to suffer that loss. Those who cannot afford to do either, as in the case of the very poor, should avoid making this unsuitable combination; for even if the power of the beverage to reduce tissue waste, and thus lessen the needs of the body, were such as to compensate for the albuminoid matter lost, it would manifestly be more economical to take the infused beverage on an empty stomach, and then, when meal-time came, less food would be required.

Certain indications may be drawn from these experiments regarding the dietetic use of these beverages in "dyspepsia." If flatulence be the chief cause of trouble, tea should be avoided when animal food is eaten, on account of the increase of flatus following their digestion together, and if this action is alone to be considered, coffee is the best beverage. If the dyspepsia is of the acid form, from over acidity of the gastric juice or its over secretion, tea, from its power of reducing the consumption of the acid, is the worst beverage, coffee is neutral, and cocoa would be best, from its increasing the consumption of acid; but if there is any tendency to the lactic acid fermentation, cocoa should be avoided, from the sugar it contains; for though Dr. Garrod states* that in America sugar is used to lessen acidity, he is careful to point out that this applies only to "pure sugar," and not to "sweetened fruits and such like substances," under which head cocoa may be reckoned. Therefore, in cases of flatulent dyspepsia, if coffee does not agree, all infused beverages should be interdicted when unsalted meat is eaten. In cases of acidity from over-secretion of the gastric juice, cocoa is the best beverage, and in cases of fermentation acidity, if coffee does not suit, all infused beverages should again be forbidden.

In the case of those who habitually eat too much albuminoid matter, which if absorbed would have to be eliminated by the kidney as urea, and so might cause gout or some renal complaint, tea would seem to be a useful beverage by its property of preventing the digestion of some part of the food, and causing it to be rejected unabsorbed.

As regards the times of using infused beverages, manifestly they should not be used at meals, which consist largely of animal food. This requirement has come to be very generally followed out, except among the poorest classes; and, with their exception, most people only make this undesirable combination at breakfast, and, as already seen, the usual breakfast meats are those least acted on in digestion by tea or coffee. Coffee has been seen to have less deleterious effect than tea on the digestion of these meats, and it should, therefore, be used at breakfast, when not rendered unsuitable in other ways.

The meal of tea, when arranged in the Yorkshire fashion with meat and hot cakes, is hardly a digestible one, and when this is made a meal, the bulk of the solid food should be vegetable, so as to have as little albuminoid matter as possible to be delayed in digestion by the beverage.

The after-dinner cups of coffee and of tea may have their uses, but from a digestive point of view are hardly free from disadvantage.

Perhaps the ladies at five o'clock tea have chosen the best time for the consumption of their favourite beverage, for early lunch has had time to have been chymified and to have disappeared from the stomach, and the interval before dinner is long enough to allow of the digestion of the very small amount of solid food which is supposed to be consumed at "kettledrum."

But the worst habit of all is that of continually sipping tea, which thus delays the digestion of whatever food it meets, and may cause serious gastric affections.

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* "Lumleian Lectures on Uric Acid," *Lancet*, 1883, vol. i. p. 582.

Erratum.—In the last number, page 62, lines 22 and 23, for "meat" read "beverage."

# *MEETINGS OF SOCIETIES.*

## ROYAL MEDICAL SOCIETY.

THE 146th Session of this famous Society was opened on 2nd November. The inaugural address, on Dr. John Gordon, a teacher of anatomy in the Extra-Academical School of Edinburgh, from 1808 to 1818, was given by Professor Chiene. As usual, the rooms of the Society were thrown open to all medical students and practitioners, with the result of drawing a very large audience. Mr. Chiene's address will appear in an early number of the *Journal*, but we may at present say that it was listened to with unflagging interest, and frequent hearty applause, which testified both the students' appreciation of the sketch of the career of an old Royal Medical Fellow, and their interest in Mr. Chiene's graphic recital. On the motion of Dr. Greig Soutar, seconded by Dr. R. S. Marsden, a hearty vote of thanks was awarded to the lecturer.

We wish the Society a continuation of its great success. Every medical student should join it at once. This will certainly be one of the things in his life he will never regret. D. BERRY HART.

## THE MEDICO-CHIRURGICAL SOCIETY.

THE first meeting of the sixty-third Session of the Medico-Chirurgical Society was held on Wednesday evening, 7th November, in the Hall of the Society of Arts, 117 George Street,—the President, Dr. G. W. Balfour, in the chair. The public business included an able and interesting valedictory address by the President, which was given after the members had seen a number of cases and specimens submitted to their attention by Mr. A. G. Miller, F.R.C.S.E., Dr. W. Craig, and Dr. C. W. MacGillivray. The cases exhibited by Mr. Miller were two, the first being one "of multiple congenital tumours on the forearms," and the second, "of plastic operation for contraction of the arm after burn."

Dr. Craig, besides exhibiting a series of twenty-eight specimens of new American herbs, some of which are officinal in the United States, but not as yet officinal in this country, submitted a pathological specimen illustrating the rare malformation of the rectum ending in the membranous portion of the urethra, which had occurred in a child under his care. Dr. MacGillivray showed three different calculi which he had recently removed from patients under his care; and Dr. P. Heron Watson also showed three calculi which he had recently extracted, one by lithotrity at a single sitting, and the others by lithotomy. Dr. Andrew Balfour, Portobello, produced, as illustrating a rare and curious experience, a half-penny piece, which had been swallowed by a boy on 1st January last, and vomited on 28th October last. Finally, the President exhibited a photograph of foliage marks taken from the arm of a boy who had been struck by lightning at Duns, on 15th June last.

The President chose for the subjects of his valedictory address, the operation of ovariotomy, and the practice of blood-letting in medicine; and pointed out the influence which the Society had had in developing opinion on both. After tracing the history of the operation of ovariotomy from the time that it was first brought before the Society—which was just a year before he joined it—to the present time, Dr. Balfour gave a succinct and interesting *resumé* of the controversy which it had evoked. The paper detailing the results of his first six operations, which Dr. Thomas Keith had submitted to the Society, ended this controversy. His four successful cases were the first in Edinburgh since Lizars' solitary one, and did more than forty years' argument to place the operation in its proper position. Since then, the history of ovariotomy had been written in an unbroken series of triumphs. Dealing next with the revolution which had taken place in the practice of blood-letting, since the time when the lancet was in everyone's hand, and like Fitz-James's blade, was both sword and shield, he said that now there had grown up a generation of physicians who had never seen phlebotomy practised; and perhaps did not know how to handle the lancet, or knew it only in the instrument-maker's shop. This reaction, he argued, was not due to a change in the type of inflammations or of fevers, as had been contended for by some, but to newer and more correct knowledge of the pathology of disease. On the motion of Dr. Heron Watson, seconded by Dr. Joseph Bell, the hearty thanks of the meeting were given to the President for his address—Dr. Bell claiming to second the motion on the ground that he had been himself bled.

Francis A. Maciver.

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# *REVIEWS.*

**Diagnosis of Diseases of the Heart.** By Ernest Sansom, M.D. London: J. & A. Churchill. 1883.

THE fact of this book having reached a third edition is a sufficient evidence of its value. It has been thoroughly revised, and a part added dealing with the use and diagnostic value of the cardiograph and sphygmograph. The first part is divided into a series of lectures on the symptomatology and ordinary physical methods of investigation of cardiac disease. In dealing with symptomatology, the author might have shown its importance as indicating the advance of disease and the commencement prior to the development of physical signs. In speaking of palpation, we think the writer makes too little of the importance of irregularity and intermittency of the pulse, unless associated with a weak heart impulse. We should fear endocardial mischief, especially in the presence of cardiac pain. It ought to be remembered that when the ventricle has struck work, the mischief has been done, and equilibrium can only be restored by compensation, and not by regeneration.

The author does not refer to palpation above the episternal notch, discomforts to some patients therefrom, and their significance. He proposes to call the superficial and deep areas of cardiac dulness, the areas of dulness and deficient resonance; as it is a mere disturbance of their relationship that is of any diagnostic value.

Four lectures are devoted to the important subject of auscultation and the phenomena met with, and their causes are clearly and fully shown. We think sounds emanating from the mitral valves are heard at the apex best, not so much from the absence of lung tissue there, as from the fact that this is the part of the left ventricle appearing on the front aspect of the heart.

The author points out how that although mitral disease is more frequently diagnosed during life, yet lesions of the aortic valves are found in the post-mortem theatre in a greater proportion of cases. Macalister, in his recent interpretations of Wagner and Hesel's researches, would seem to explain this. He showed how the bases of the mitral valves have to be drawn together ere complete apposition takes place, and this in the normal heart.

He believes that the murmurs, often present in cases of chorea, are invariably due to organic disease; that in these cases there are vegetations on the endothelial surface, which may be ultimately washed away and leave no trace. The exact chronometry of murmurs is emphasised, and especially of murmurs in the mitral area. There is a clear description of the various forms of presystolic murmur, but for the sake of uniformity of nomenclature, it would have been well if the term presystolic were applied only to that rough murmur coincident with the auricular systole, and whose presence is absolutely diagnostic of mitral obstruction. This murmur also, when present in such case, is more or less a favourable sign, and frequently appears simultaneously with an improvement in the general symptoms. The author omits all mention of the auscultatory phenomena met with in the arteries.

In the second part of the work, the author describes the various forms of cardiograph and sphygmograph, and their use. He also shows a number of tracings obtained from the pulse and heart by their means, and attempts fully an explanation. He gives examples showing their value in diagnosis, as, for instance, in distinguishing between cases of aortic regurgitation associated with rheumatic endocarditis, and others with atherosis of the aorta. The author has interpreted some cardiograms, so that he believes the *presystolic* murmur in certain cases may occur independently of auricular contraction.

Upon the whole, this manual is so clearly and fluently written, that it will prove of great value not only to the advanced student, but also to the busy practitioner, who will find in it much that will stimulate to accuracy in cardiac diagnosis.

ALEXANDER BLACK.

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## The Electro-Magnet and its Employment in Ophthalmic Surgery.

By SIMEON SNELL. Pp. 94. London: J. & A. Churchill, 1883.

MAGNETS have occasionally been used for more than two centuries for removing splinters of iron from the eye. It is only within the last few years, however, that the adaptation of electro-magnets to this purpose has given the method considerable practical importance. This little monograph contains a discussion of the uses of magnets, illustrated chiefly by the author's own cases, and a *résumé*, which might with advantage have been indexed or classified for reference, of cases treated in this way by other surgeons. Many of these are published here for the first time. Limited in their application as these methods necessarily are, they are valuable as well as thoroughly scientific, and this compact account of what has been done by them will be useful to all interested in the subject.

In doubtful cases the presence of iron or steel in the eye may occasionally be proved by bringing a strong magnet near it, either from visible movements caused in its interior, or from sensations experienced by the patient. Movements of a fine delicately-poised magnetised needle held close to the eye sometimes serve the same purpose. But as might be expected, these methods do not always give positive results where iron or steel is present.

The great advantage of the magnet over all other instruments for removing foreign bodies of this kind is, as Mr. Snell puts it, "that it not merely seeks the metal, but the metal seeks it." This is of special importance where the body is in the vitreous chamber, and reduces to a minimum the risk of failing to remove it, and also of losing vitreous humour during the operation. Of about forty such cases here recorded, in which the magnet has been used, it succeeded in removing the foreign body in all but nine; and in most of these the cause of failure was found to be impaction of the body in the coats of the eye. In some of the cases the final result is not stated; but in twelve $V = \frac{1}{3}$ and upwards was retained, and in several vision was perfect;—very satisfactory results considering the gravity of the condition. In one of the successful cases the fragment of iron was lodged in the retina.

With foreign bodies in other situations the results are satisfactory, though less striking. Without doubt the electro-magnet will in future be the favourite instrument in cases where it can be of use. R. A. Lundie.

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## *REPORT ON MEDICINE.*

### *RECENT PAPERS.*

1. **Oppenheim.**—Weiterer Beitrag zur Polyurie. (A Further Contribution to the Subject of Polyuria.) *Zeitschr. f. kl. Med.*, vol. vi. p. 556.
2. **Riegel, F.** — Ueber Krämpfe der Respirationsmuskeln. (On Spasm of the Respiratory Muscles.) *Zeitschr. f. kl. Med.*, vol. vi. p. 550.
3. **R. von Jaksch.**—Ueber die klinische Bedeutung der Peptonurie. (On the Clinical Significance of Peptonuria.) *Zeitschrift f. kl. Med.*, vol. vi. (1883), p. 413.
4. **Guttmann.** — Zur Symptomatologie der Aortenaneurismen. (On the Symptomatology of Aortic Aneurisms.) *Zeitschrift f. klin. Med.*, vol. vi. p. 131.
5. **Lemcke.**—Ein Fall von sehr tiefer Erniedrigung der Körpertemperatur nach primärer Hämorrhagie in der Medulla Oblongata. (A Case of very great Depression of the Temperature of the Body after Primary Hæmorrhage into the Medulla Oblongata.) *Deutsch. Arch.*, vol. xxxiv. p. 84.
6. **Dejerine.**—Étude Anatomique et Clinique sur la Paralyse Labio-Glosso-Laryngée. (Anatomical and Clinical Study of Labio-Glosso-Laryngeal Paralysis.) *Archives de Physiologie Normale et Pathologique.* No. 6, August, 1883.
7. **Westphal.** — A Contribution to the Study of Syringomyelia (Hydromyelia). *Brain*, Part xxii. (1883).
8. **Mackenzie, Stephen.**—On Loss of Both Knee-Jerks from One-Sided Brain Disease. *Brain*, Part xxii. (1883).
9. **Merkel.**—Kairin als Antipyreticum. (Kairin as an Antipyretic). *Deutsch. Archives f. kl. Med.*, vol. xxxiv. p. 100.

1. **Oppenheim on Polyuria.**—In addition to some instances already recorded, Oppenheim details another case of polyuria of special interest. The patient, aged thirty, was an epileptic, with mental symptoms. He was found to be passing urine to the amount of 5-6 litres, a quantity considerably exceeding the amount of fluid swallowed, even when the water contained in the solid food was taken into account. Even a small curtailment of the fluid swallowed occasioned violent thirst; and it was found that when only two litres were allowed, the urine, though diminishing much in quantity, exceeded the quantity of fluid taken. When the latter was again raised in amount the urinary flow increased, but lagged behind the fluid swallowed, showing that the body had been deprived of water during the days when the quantity of drink allowed was small. The urea excretion represented pretty closely the quantity of nitrogenous

material in the food. In similar cases, which he has already described, Oppenheim found that there was an abnormally great excretion of sodic chloride. In the present case, the average daily quantity of that salt excreted was 26 grms., which is very high when compared with the average in health, which, according to Kühne, is 15 grms., and according to Salkowski, 9-15 grms. In the present case, Oppenheim found that the patient salted his food to such an extent that he consumed 25-30 grms. of chloride of sodium in the day. When no salt was allowed, the quantity in the urine sank, but very quickly again rose of itself, showing that the increased excretion was primary, and the increased consumption secondary. In regard to the relation of polyuria and polychloruria, it might be supposed that the former was the result of the latter, but this is disproved by the fact that when the salt was cut off from the patient, the polyuria continued. Oppenheim was unable to detect any influence of the epileptic convulsions upon the amount of chloride excreted.

As regards the urea excretion, it was found by careful estimations (Pflüger's method) that in the twenty-four hours following an epileptic attack the urea increased in quantity. Deficiency of oxygen has been shown by Fränkel to increase the breaking up of albumen in the tissues, and this may account for the increased urea elimination in this case.

All treatment with morphia, acetate of lead, cantharides, ergot, and an ice-bag to the head and spine, was inefficacious.

A carefully prepared table, showing the results of daily urine analysis, &c., is appended to the article. The main facts have however been noted in this abstract.

2. **Riegel on Spasm of the Respiratory Muscles.**—In this article Riegel briefly details and comments upon a case of respiratory spasm which he had the opportunity of studying, and which was peculiar, firstly, in that it differed materially from the recognised forms of that affection; and secondly, on account of the very rapid cure effected.

As is well known, respiratory spasm shows itself for the most part in three forms—(1) spasm implicating the inspiratory muscles; (2) that affecting the expiratory muscles; and (3) mixed forms. Of these the first group is the most frequently met with; clonic spasm of the diaphragm (hiccup) being the commonest, although tonic spasm of that muscle also sometimes occurs. Occasionally the other inspiratory muscles are involved along with the diaphragm.

The second group is exemplified in spasmodic cough, and the third in convulsive sneezing. The case detailed by Riegel differed materially from all these forms, and exhibited the following symptoms:—

The patient, who was a boy of fourteen, had, a year before he came under observation, fallen into water. Immediately after being rescued he complained of a feeling of oppression in the epigastrium, and of pain over the abdomen. In the course of a fortnight difficulty of breathing set in, and his condition remained unchanged up to the time of his admission to the hospital. He then appeared pale and anxious, and complained of difficulty of breathing. No lesion of the internal organs or of the nervous system could be detected. He repeatedly made short spasmodic expirations, which did not connect themselves with previous inspirations, but which were pushed in, as it were, between the ordinary respirations. From time to time he made deep inspirations, which were often followed by short expirations. The thorax was remarkably retracted after these attacks, the epigastrium drawn inwards, and the abdominal muscles strongly contracted. Frequently there occurred long pauses in the breathing, which sometimes lasted twenty or thirty seconds. Riegel gives two graphic tracings of the respiratory movements, and describes these in detail. They show that the case was one of pure expiratory spasm, and differed materially from previously described cases. It was specially remarkable on account of its long duration of more than a year. Such respiratory spasms are usually of reflex origin, but in the present case no such cause could be detected. Riegel consequently made the diagnosis of hysteria, and proceeded to purely psychical treatment. The patient was told that he could and must suppress the spasm, and was ordered to breathe methodically and slowly. With the help of Faradic electricity this was immediately and completely successful (thus confirming the diagnosis), and there was no relapse. Such instances of hysteria are exceedingly rare in boys, and for the most part show themselves in laryngeal spasm and spasmodic cough, as in some instances recorded by Leyden.

3. **R. von Jaksch on the Clinical Significance of Peptonuria.**—The results given in this article are deduced from 762 individual observations. The test employed was that recommended by Hofmeister—viz., precipitating the pepton by means of phosphorwolframic acid, and the detection of that substance in the precipitate by means of the biuret reaction. The following are the main results obtained:—

(1.) *The connection of Peptonuria with local inflammatory processes.*—Maixner has shown that in the great majority of cases the appearance of pepton in the urine goes hand in hand with the presence of an inflammatory exudation rich in cells. This result is confirmed by Von Jaksch, who found that only in 5·2 per cent. of his cases, was there no such exudation to account for the peptonuria. The exceptions were cases of scorbutus and phosphorus poisoning.

(2.) *The dependence of Peptonuria upon the absorption of the exudation.*—The factors which determine whether the pepton of an exudation shall pass into the urine or not, can be determined by clinical observation. In diseased processes, where, by inspection or physical examination the absorption of the exudation can be observed, it will be found that when rapid absorption takes place, peptonuria occurs. This is most readily observed in cases of acute articular rheumatism, and of pneumonia.

(3.) *The absence of Peptonuria in spite of the presence of exudation.*—The observations of Hofmeister have shown that pepton is not present (or only to a very small extent) in simple solution in such purulent exudations. It is united to the pus cells, and is only set free when these cells are destroyed. On its absorption into the circulating blood, it becomes attached in the same way to the blood corpuscles. In order to the occurrence of peptonuria, it is therefore necessary (1) that the pepton-carrying cells of the exudation be broken up; (2) that the pepton be absorbed into the blood; and (3) that the quantity of the pepton absorbed be of a certain amount; for it has been shown that if pepton be injected into the blood only a certain proportion passes out into the urine; and further, the test for the presence of pepton in urine is not very delicate.

(4.) *The occurrence of Peptonuria in other than inflammatory processes.*—Von Jaksch found pepton in one case of phosphorus poisoning out of three such cases, but he is unable to indicate any cause for this difference. Out of seven cases of scorbutus, only three had peptonuria; and in these instances he ascribes the presence of this symptom to the breaking down of the white blood corpuscles in the blood which he observed to take place.

(5.) *On the diagnostic value of Peptonuria.*—The occurrence of this symptom points with very great probability to the presence of an exudation in which pus cells are breaking up. While this can but seldom be required to aid a diagnosis, it may often be of considerable value in prognosis. In pneumonia, for example, the occurrence of peptonuria shows that the exudation is being absorbed; and the disappearance of that symptom, in such a case, would indicate that absorption was at an end, either the exudation having been completely removed, or that it was undergoing some other metamorphosis. The same remarks apply to pleuritic exudations of a purulent nature.

4. **Guttmann on the Symptomatology of Aortic Aneurisms.** — It is well known that in cases of aneurism of the thoracic aorta the pathological process which gives rise to the aneurism,—the endaortitis chronica deformans,—is liable to attack the aortic valves, and thereby occasion insufficiency. In such cases the symptoms of aortic regurgitation add themselves to those of aneurism,—if, indeed, the aneurism give rise to any symptoms at all, which is often not the case. In the patient whose case is recorded in this article, however, the reverse was the case, an aortic aneurism giving rise to all the symptoms of aortic regurgitation in spite of complete integrity of the semi-lunar valves. The signs and symptoms in connection with the circulatory organs which this patient exhibited were the following:—The apex beat was strong, diffused, and heaving. The cardiac dulness extended from the third left intercostal space above to the sixth rib below, and from the right border of the sternum on the right to a point slightly outside the nipple on the left. On auscultation, there was to be heard over the body of the sternum, the xyphoid cartilage, and in the second left intercostal space, a loud long-drawn diastolic murmur. At the cardiac apex this murmur became almost inaudible. At the same time, a less loud and short systolic murmur was heard over the sternum, and in the second right and left intercostal spaces. Along with this murmur there was faintly audible a systolic sound. The second aortic sound was inaudible, nor was the second pulmonary sound to be heard in its usual site. At the lower end of the sternum a diastolic sound was faintly heard, but whether it was of aortic or pulmonary origin could not be determined. In the carotid and subclavian arteries the first sound was replaced by a murmur synchronous with the heart systole; the second sound was absent. When the stethoscope was lightly applied over the brachial artery, a diastolic sound was audible, which changed into a murmur when pressure was increased. The same phenomena occurred in connection with the femoral artery, and in that vessel there was further audible, when pressure was still more increased, a double murmur, systolic and diastolic. All the arteries pulsated strongly, exhibiting beautiful examples of the *pulsus celer.* The diagnosis arrived at from these data was one of aortic insufficiency, but this was not confirmed on post-mortem examination. There was then found hypertrophy of the left ventricle, and a large aneurism involving the ascending aorta and the arch. The aortic valves were completely normal.

In this case, therefore, all the ordinary signs of aneurism (pulsation, dulness, &c.) failed, while all these of aortic insufficiency were present, along with full integrity of the semi-lunar valves. Guttmann goes on to analyse the physical signs present, as follows:—The diastolic murmur, be believes, must have originated in consequence of the irregularity in the rebound-wave in the aorta which normally closes the semi-lunar valves and causes the second sound. The absence of a second sound in the carotid and subclavian arteries is to be explained by the loudness of the diastolic murmur over the heart. The aneurismal sac allowed sufficient back-flow of blood from the arteries to account for the *pulsus celer;* and in the same way is to be explained the abnormal auscultatory phenomena in the vessels.

Thus it is seen that all the so-called cardinal symptoms of aortic insufficiency may exist without any lesion of the valves, in cases of aortic aneurism where hypertrophy of the left ventricle also occurs.

A very similar case came some time ago under the observation of the writer of this abstract, in which all the signs of aortic insufficiency existed, but in which, on post-mortem examination, the valves were healthy, and an aneurism was found which had given no indications of its presence during life. Such observations must make the diagnosis of aortic incompetence very guarded, but it is to be remembered that the conditions under which it can be thus simulated must occur but rarely.

5. **Lemcke on Low Temperature after Hæmorrhage into the Medulla.**—In this article Lemcke details a very remarkable case in which a primary hæmorrhage into the medulla oblongata produced great lowering of temperature, the thermometer in the rectum on one occasion standing as low as 23° C. (73·4° F.). The patient, aged thirty-eight, complained, when he first came under observation, of pain in the chest. His mind was somewhat clouded, his speech thick, the movements of the limbs uncertain and tremulous. He had been addicted to brandy, and smelt strongly of alcohol. There was no abnormal physical sign met with in the examination of the thorax. Some days later he was admitted to the hospital, when it was found that the skin felt very cold, and that the action of the heart was much depressed. The radial pulse could not be detected, and the carotid only with difficulty. The heart was pulsating at 38 per minute, the respirations being 18. The patient was unable to reply to questions, lay with the eyes staring, all the muscles relaxed, and incapable of swallowing. After being washed in a warm bath, he was carefully placed in a warm bed. Sometime afterwards a thermometer was inserted into the rectum. The temperature was found to be 23° C. (73·4° F.). The thermometer was a trustworthy one, it had been pushed far into the rectum, and had remained there for fifteen minutes. Subsequent observations, on the following day, gave somewhat higher readings, varying from 25° to 28° C. (77 to 82·4° F.). Cheyne-stakes breathing set in, and the patient died twenty-seven hours after admission. On post-mortem examination nothing of special importance was detected by the naked eye. The interest of the case centres round the microscopic examination of the medulla oblongata. In the upper portion of the cervical cord no abnormality was found, and as sections were made in series up the medulla oblongata, the appearances were normal until the upper part of the pyramidal decussation was reached, when there appeared well-marked hyperæmia and dilatation of the vessels of the left half of the section. Sections above this showed that the cells of both the hypoglossal and accessory nuclei were abnormally pigmented, and a hæmorrhagic extravasation was found lying about 3 mm. to the left of the middle line, and about 1½ mm. beneath the floor of the fourth ventricle. Its length was about 4 mm., and its breadth 1-1½ mm.

In the critical remarks appended, Lemcke considers the possibility of the depression of temperature arising from great alcoholic indulgence, and from mental disease in different forms; but ultimately comes to the conclusion that in this case it was brought about by the lesion in the medulla.

6. **Dejerine on Labio-Glosso-Laryngeal Paralysis.**—The author here argues for the essential difference between progressive muscular atrophy and labio-glosso-laryngeal paralysis. He calls attention to the contrast between the clinical features of the two diseases; how in labio-glosso-laryngeal paralysis the tongue and lips, though completely paralysed, are not atrophied to any appreciable extent; and how, on the contrary, in progressive muscular atrophy,

these muscles are so markedly wasted, and yet to the very end retain more or less of their power of movement. This view he supports on anatomical as well as clinical grounds, giving with minute detail the results of his observation in two cases of labio-glosso-laryngeal paralysis, and summing up the results of other observers. He believes that disease to result from lateral sclerosis, and points out how uniformly that lesion is found, and how rarely atrophy of the nerve-cells occurs in such cases.

7. **Westphal on Syringomyelia.**—Dilatation of the central canal of the cord is often found in the fœtus, and occasionally persists in man without giving rise to any noteworthy symptom. But in many cases it presents peculiar complications, which render it doubtful whether the cavity may not have resulted from pathological changes occurring in later life. The chief of these complications are sclerosis of the posterior columns, atrophy of the grey substance, and neoplasms. It is remarkable that in most of the cases recorded the lesion is seated in the posterior columns, and that in the new growth cavities are found lined with cylindrical epithelium. In a previous case described by Westphal, as well as in one recorded by Simon, a normal central canal was distinguishable in front of the cavity, from which the conclusion was drawn that the latter could not represent a dilatation of the former. Westphal now describes two new cases of this disease, the main features of which were as follows:—

*Case* 1.—A carpenter, aged sixty-seven, had suffered some years before from intermittent fever, in the course of which he experienced some dyspnœa and cough. On admission, his lips were swollen, he had girdle pain, and the urine was very large in quantity, and occasionally contained sugar. Some time later, marked tremor of the lower limbs set in. He could move them with difficulty, and sensation was diminished. The joints were stiff, and forcible movement caused pain. Three years later he came again under observation, when it was found that the polyuria had disappeared. The stiffness of the joints remained, and the anæsthesia was as formerly. The limbs were emaciated. Faradic excitability of the muscles remained unaffected. The patient gradually sank and died. On post-mortem examination a tumour of the cord was found in the upper part of the cervical enlargement in the posterior column, involving the grey substance, but not reaching the central canal. It was irregular in form and seat at different heights, but never involved the antero-lateral columns. The central canal was plainly visible at every point, except where the tumour encroached deeply on the commissure. The structure of the new growth, which was very complicated and peculiar, is fully described in the text.

*Case* 2.—This patient, aged fifty-eight, came under observation in 1875. The case has been already published by Dr. Wernicke, Professor Westphal's former assistant, and the clinical details are not given here, because the symptoms during life were not referable to the lesion in the spinal cord, but to a tumour in the pons. On post-mortem examination this tumour was found involving the pons and adjacent parts. In the cervical enlargement of the spinal cord a new growth was found, involving the anterior parts of the posterior columns. On microscopic examination it was found that sections made above the cervical enlargement showed no tumour, but in them grey degeneration of the columns of Goll could be seen. Sections through the cervical enlargement showed a cavity situated in the posterior columns surrounded by a ring deeply stained with carmine. Passing downwards through the cord, the sections show that in the upper dorsal region the cavity comes at last to lie in the grey substance on the right, and that at the same time a tumour began to appear in the right posterior column. The central canal was distinguishable, except where the circle of new growth invaded the commissure. It was in some parts somewhat dilated, and contained blood corpuscles.

A comparison of these two cases leads Westphal to the conclusion that the new growth commenced in a cavity which had been originally a diverticulum of the central canal, and that the tumour gradually became filled up with sclerotic tissue. These changes had, no doubt, been congenital, a disturbance of the development of the central canal leading to cavity formation, accompanied by a tendency to the development of fibrous new-growth.

In the first case, the patient came to the hospital on account of difficulty in respiration, and the symptoms of sensation and motion were subsequently discovered. To sum up these disturbances, there was found paresis of the lower extremities, with stiffness of the joints, weakness of the arms, and a degree of anæsthesia, the boundaries of which could not be determined on account of the patient's mental condition. There was no muscular atrophy, properly so called. In the other case, no symptoms appeared which could be attributed to the affection of the cord, the syringemyelia running its course without giving any indication of its presence.

A symptom of great interest was the polyuria which appeared in the first case, along with the occasional presence of sugar. This recalls the observations of Dickinson, who states that in diabetes mellitus it is common to meet with a dilatation of central canal of the cord in the dorsal and lumbar regions, together with proliferation of the endothelium.

8. **Stephen Mackenzie on Loss of both Knee-Jerks from One-Sided Brain Disease.**—The case in which the writer of this article found loss of both knee-jerks, was that of a woman, aged twenty-five, who first came to hospital on account of failing eye-sight. The left eye was found to exhibit optic neuritis, which subsequently appeared in the right eye. She came there under the care of Dr. Stephen Mackenzie. About a year before admission, she had felt pain in the head, along with a numb feeling down the right side. Latterly she had had two convulsive attacks. On admission, there was found to be paresis of the right leg and arm, absence of both knee-jerks, defective movements of the eyeballs, but no facial paralysis. In about a month it was noticed that the right side of the face had become paralysed; and this condition ultimately became very complete. Sensation was in great measure lost on the right side of the face and right arm and leg. The patient gradually sank, and died about two months after admission. On post-mortem examination, a glioma was found in the left hemisphere involving the corpus striatum and thalamus opticus of that side, and extending down the crus cerebri to its junction with the pons. The spinal cord was healthy.

The case is noteworthy from several points of view,—for example, the predominence of the eye symptoms at the commencement, and the fact that the left eye was the first affected. The point to which Dr. Mackenzie draws special attention, however, is the absence of knee-jerk on both sides. It is well-known that when the inhibitory action of the brain is cut off, as by a destructive lesion in the upper part of the cord, the knee-jerk becomes exaggerated. But how is it to be explained that a cerebral lesion causes its abolition?

Dr. Stephen Mackenzie proceeds to explain this phenomenon in the following way:—He supposes that there is in each hemisphere an inhibitory centre (or centres) acting upon the spinal cord as a reflex centre. These centres are capable of being augmented by a voluntary effort. They act together, each being connected with both halves of the spinal segment. When one of these centres is destroyed, the other is uncontrolled, and its positive action overweighing the negative action of its destroyed fellow, both knee-jerks are abolished. A diagram appended to this article exhibits clearly this view.

This hypothesis explains how the knee-jerk is exaggerated when there is descending degeneration in the cord, and at the same time shows how the reflex may be abolished on both sides, from a unilateral cerebral lesion, without there being any affection of the cord. On this hypothesis, were both inhibitory centres destroyed, there would be exaggerated knee-reflex on both sides; but Dr. Mackenzie does not know of any clinical facts bearing on this point.

9. **Merkel on Kairin as an Antipyretic.**—It is now scarcely a year since Filehne first drew attention to the valuable antipyretic action of a substance named kairin, the more correct chemical nomenclature of which being hydro-oxy-methyl-chinolin. He found however that its action, though powerful, was somewhat fugitive. In the beginning of the present year he recommended that another kairin should be employed—in this case the hydro-oxy-ethyl-chinolin—which gives more permanent results on the temperature. He found the drug to have specially good results in the pyrexia of pneumonia and of hectic fever. Since then, kairin has been employed by various physicians with good effect, the most important and extended observations being perhaps those of Guttmann and Riess, communicated to the Berlin Medical Society in July last. Since then, Merkel has further investigated the action of kairin, and gives the results he arrived at in the article before us. He treated exclusively with kairin the pyrexiæ of nineteen patients suffering from phthisis, croupous pneumonia, pleurisy, endocarditis, anæmia, scarlatina, and typhoid fever. He usually gave 1 gramme when the temperature was high, followed every hour by either half-a-gramme or 1 gramme each hour, according to the severity of the pyrexia, until the normal temperature was reached. When the thermometer again rose these doses were repeated. He believes kairin to be a very powerful, if not the most powerful, antipyretic, and found that it reduced every fever temperature for which he administered it, the amount of the action depending not only on the dose, but also on the constitution of the patient, and the nature of the disease. As a rule, no collapse followed its action. It seems to have been chiefly efficacious in cases of continued fever in which heart and lungs are not implicated in the first degree. Merkel was not able to satisfy himself that the use of kairin affected the course of the disease in any way. It simply kept the temperature in control. J. Graham Brown.

## *REPORT ON MENTAL DISEASES.*

### *RECENT PAPERS.*

1. **Bianchi.**—Sulle Compensazione Funzionali della Cortecia Cerebrale, Contribuzione Sperimentale. (On the Functional Compensation of the Cortex Cerebri.) *La Psichiatria*, 1883, p. 73.
2. **Brown-Séquard.**—Recherches Experimentales et Cliniques sur le Mode de Production de l'Anesthésie dans les Affections Organiques de l'Encéphale. (Experimental and Clinical Researches on the Mode of Production of Anæsthesia in Organic Affections of the Brain.) *L'Encéphale*, No. 5, Paris, 1883.
3. **Adriani.**—L'Ascoltazione della Parola alla Superficie del Capo. (The Auscultation of the Voice on the Surface of the Head.) *Revista Sperimentale di Freniatria*, 1883.

4. **Marandon de Montyel.**—DE LA FIÈVRE TYPHOIDE DANS SES RAPPORTS AVEC LA FOLIE. (On Typhoid Fever in connection with Insanity.) *Annales Médico-Psychologiques*, Mai, 1883.

**1. Bianchi on the Functional Compensation of the Cortex Cerebri.**—The vivisections of Goltz and others, who showed that no permanent paralysis followed the extirpation of the so-called motor centres in the hemispheres of the dog and other animals, have not yet been fairly met by those who hold that there are defined zones at or about the median convolutions which have for their special function the excitation of different groups of muscles. The defenders of the theory of motor centres (who had made their first experiments on dogs) now asserted that there was a difficulty in ascertaining analogous zones in the canine brain to that of man, and that it was much safer to draw inferences from the result of observations on the simian brain. A monkey was shown at the International Congress in London, in which a permanent loss of power of both extremities on one side had been produced by the extirpation of the motor centres in the cortex. Dr. Bianchi tells us that Luciani and Tamburini had witnessed the complete cure of the paralysis of the upper extremity of a monkey in which they had two months before destroyed the corresponding cortical centre. These physiologists hold that the excitations which proceed from the centres of thought and sense in the hemispheres follow two paths, one along the fibres which connect the different parts of the cortex, the other descending to the corpus striatum. In man and the higher apes the psycho-motor centres of the cortex are better developed and functionally more powerful; in the dog, and in animals lower in the scale, more of the motor functions are performed through the corpus striatum, hence the destruction of the motor centres in the cortex is not followed by such long continued paralysis.

Dr. Bianchi, who has studied the question carefully, and made numerous vivisections, principally upon dogs, maintains that much of the perplexity following conflicting observations has been caused by not distinguishing locomotion from the other motor functions. Locomotion is a property of all animals, whether possessed of a nervous system or not, nor has its functions been so localised in the hemispheres of the dog as to be dependent upon the integrity of any part of the cortex. In this animal, Dr. Bianchi confirms the observations of Goltz, that the cortical motor zone may be destroyed without this being followed by any durable disturbance of the function of locomotion; but he affirms—and this is his point of distinction—that the recovery from the paralysis following an extensive destruction of the motor zone in dogs is only apparent and partial. It is only the power of walking and the correlative acts which return; every other movement requiring different conditions for its exertion has been found, in an experience of several months, to remain permanently abolished, and the muscular force is also diminished.

When the animal is suspended in the air, so that the paw cannot touch the ground, the limbs on the opposite side of the site of the cortical lesion are unable to execute any movements, even to help to escape from a painful electric current, whereas the limbs on the other side are put in vigorous motion by the same stimuli. These views are supported by detailed descriptions of the author's experiments.

Dr. Bianchi refers to Golgi's very careful studies on the minute anatomy of the central organs of the nervous system, to which it may be well to direct the attention of students of neurology. These important researches are being published in the *Rivisita Sperimentale di Freniatria*, accompanied by exquisite lithographic plates. A translation of Golgi's papers, by Dr. Workmann, of

Toronto, is going on in *The Alienist and Neurologist.* Golgi's observations have led him to deny any morphological difference in these portions of the cortex to which different functions have been assigned. Betz affirmed that there existed a difference of structure between the convolutions in front of the fissure of Rolando and behind, especially in the exclusive presence of groups of giant cells with prolongations of two kinds in those parts to which motor functions have been assigned. This difference of structure, Golgi asserts, has no real existence, thus seeking to deprive the doctrine of localisation of an anatomical substratum.

Dr. Bianchi has observed that after an extensive destruction of the motor zone in the hemisphere of the dog, electric excitation applied to the motor zone of the opposite side can cause associated movements on both sides of the body. Our author, somewhat magniloquently, claims by fresh experiments to have called from oblivion the observations of Soltmann and Albertoni, who had reached similar conclusions.

Dr. Bianchi holds that there is a zone in the anterior part of the cortex cerebri whose limits are not nicely determined, but which does not go further back than a centimetre behind the gyrus post cruciatus of the dog. This zone contains motor elements for all the muscles of the opposite side of the body. In this large surface there are some points which alone are excitable to electricity; and when these points are removed it is impossible to excite motions in the limbs by the application of an electrode to the cortex, even when the paralytic symptoms following renewal have disappeared. The other parts of the hemispheres, though containing motor elements, are not excitable in this way. Some muscular groups are represented by distinct areas within this zone, but at the same time are less distinctly represented in the remainder of the motor zone. In this way Dr. Bianchi thinks that, after partial destruction of the motor zone, the remaining portion may by increased activity make up for the loss of the destroyed portion of grey matter.

In the brain of dogs there is a promiscuous motor and sensory zone, and that zone is the anterior branch of the second external convolution. The removal of this zone, along with the sigmoid gyrus, renders the hemiplegia graver. When this zone alone is removed, the motor power of the animal is injured, but not the sight.

The centre of vision is represented by a large extension of the cortex, which may be divided into three segments. The extirpation of one of these is equivalent to the extirpation of all; but this effect is only temporary. Any of these three centres being left, suffices to re-establish vision. The extirpation of all the cortical centres of vision implies the removal of a large part of the posterior hemisphere, comprising part of the first and third external gyrus, and the whole of the second, as well as the occipital lobe. The disturbance of vision caused by this extensive extirpation of the cortex, is not amblyopia of the opposite eye, but always lateral hemiopia. Each eye is represented in the two hemispheres, more in the opposite hemisphere than in the same side.

As the final result of his studies and experiments, Dr. Bianchi has arrived at the conclusion that the localisations of function in the cortex cannot be maintained in the absolute sense of the word; since, on the one hand, it is impossible to determine the anatomical limits of any portion of the cortex cerebri performing a definite function; and, on the other hand, no such function is properly fulfilled without the conjunction of all the elementary processes that go to make it up, and of which, as a phenomenon, it is the last expression. In the same way, the anatomical area is but the last station in which all the concurrent normal functions gather together and bring into a realised and visible form the sum of the different nervous processes. The complexity of the phenomena is such that the human analytical powers are not equal to grasping at an explanation which would reconcile the apparent incongruity of the facts contributed by different observers.

**2. Brown-Séquard on Anæsthesia in Local Affections of the Brain.**—M. Brown-Séquard, in a communication made to the Academy of Science, points out that it is a common error to believe that the paralyses, anæsthesias, or amauroses produced by a lesion of some part of the brain, are owing to the loss of the function of the part which is destroyed. He found in numerous experiments on animals that a section of the lateral half of the medulla oblongata, or the pons varolii, or of one crus cerebri, is followed by anæsthesia of the opposite side and hyperæsthesia of the corresponding side. If a section be made of the lateral half of the spinal cord in the dorsal region, the anæsthesia not only disappears, but hyperæsthesia takes its place in the hind leg. Now, if anæsthesia following the first lesions had been entirely owing to the loss of function of the part cut at the base of the brain, how could it have suddenly disappeared under the influence of a lesion of the spinal cord?

Brown-Séquard holds that any part of one of the hemispheres of the brain may be destroyed without producing anæsthesia. He quotes from M. Richet a case of the destruction of the middle lobe and a great part of the posterior lobe without producing anæsthesia; and from some older observers, cases where the hemisphere was almost totally destroyed without anæsthesia. Sometimes, he observes, destructive lesions of the parts believed either to be conductors or centres of sensibility have been followed by hyperæsthesia. In more than a hundred cases lesions of different portions of the brain have been followed by anæsthesia on the same side as the part injured; or destructive lesions of parts believed to be centres or conductors of sensory impressions, have been followed by anæsthesia of the arm or leg alone, or the loss was confined to anæsthesia of touch, or of heat, or of pain.

Sometimes the anæsthesia appears only in one side of the body, while the lesions occupy two corresponding parts on each side of the base of the brain; on the other hand, a lesion of one side of the brain may determine anæsthesia on both sides of the body.

The results of experiments on animals are various and uncertain; the only thing settled seems to be that lesions of some parts, especially of the internal capsule of the corpus striatum, determine anæsthesia oftener than others.

**3. Adriani on Vocal Resonance on the Surface of the Head.**—Dr. Adriani, having observed that the fremitus felt by the hand laid on the forehead during the act of speech was generally best felt with lunatics, was induced to make some observations on the auscultation of the voice. He found the most suitable way to do was to apply the ear close to the stethoscope placed on the head, and to shut the other ear to the vibrations of the air with the finger. The patients were instructed to speak in an undertone. The sounds are heard most distinctly over the occipital region, and are heard better along the middle of the vertex than at the sides. His observations were made on 329 people—109 of whom were sane, and 220 insane. He found that there was a variation from the average force of the transmitted sound in 26 per cent. of the insane, and only in 6 per cent. of the sane.

In some cases the sounds were weaker than usual, but in general they were stronger. . He was, however, unable to make out that any modification of the vocal sounds transmitted through the head was characteristic of dementia, imbecility, or any other form of insanity. What seems to tell most against the hope of any advantage being gained from this method of auscultation, is that the transmission of sound is principally conducted by the bones of the cranium, and not by the brain, which rather tends to muffle or deaden the tones. Dr. Adriani correctly observes that some forms of insanity are accompanied by changes in the density of the bones of the cranial vault. He, however, believes that the sounds of the voice transmitted through the head are modified by the augmentation and diminution of the pressure of fluids in the brain. He cites the observations of Dr. Crichton Browne, that the brains of those who have died in a state of dementia are lighter than those who have died in a state of mania. It is doubtful whether the variation in the density of the brain is so great as to make a difference even to a practised ear; but where there is serous fluid under the dura mater, or tumours in the brain, he thinks that a difference in the conduction of sound might be noticed which would be useful in diagnosis.

Dr. Adriani wishes other physicians to help by taking part in his difficult inquiry.

4. **Marandon de Montyel on Typhoid Fever in relation to Insanity.**—Dr. de Montyel considers that where insanity attends or follows typhoid fever, there is a predisposition to neurosis or original weakness of brain. He distinguishes between the delirium occurring in the course of the fever, which he calls pertyphic, the delirium of convalescence, and the postyphic insanity, pursuing its course after recovery has set in, or suddenly appearing during convalescence. Sometimes instead of the usually depressed and weak delirium of typhoid there is an attack of acute mania. In this case the mental disorder is so great as to mask the fever. A distinct symptom of this complication is a tendency to spitting, with a horror of liquids, so that if there be high fever, great agitation, and expectoration with a horror of liquids, the complication of congestive mania with typhoid fever may be diagnosed. The delirium of convalescence generally consists in mental obtuseness with loss of memory, sometimes melancholy, and sometimes ideas of grandeur, with occasional hallucinations. It is the result of cerebral exhaustion and anæmia, and soon passes away after recovery from the fever; but if the mental derangement do not pass away during convalescence, it is generally incurable. This is Dr. de Montyel's postyphic form, included in the post-febrile insanity of Skae. It more often takes the form of mania than of dementia, occasionally that of general paralysis. The French physician cites a number of cases where the occurrence of typhoid fever in lunatics has been followed by the restoration of reason. He calls this happy result a substitution of action. Unfortunately, it does not always follow typhoid fever in lunacy. Sometimes, especially in chronic cases, the mental derangement is aggravated instead of being improved by the febrile action.

W. W. IRELAND.

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# THE EDINBURGH CLINICAL AND PATHOLOGICAL JOURNAL.

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## ORIGINAL ARTICLES.

### ADDRESS DELIVERED AT THE OPENING OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH.

By JOHN CHIENE, M.D.,

PROFESSOR OF SURGERY IN THE UNIVERSITY OF EDINBURGH.

FELLOW-MEMBERS AND GENTLEMEN,—My first thought to-night is, that I have frequently expressed the opinion that the Senior President should open the Session of the Royal Medical Society.

My presence here to-night is to a certain extent an acknowledgment that I was in error in this idea. It has now become the rule for one of your teachers to open the session, and as I am informed by the Presidents of the Society (who surely are the best judges) that the custom has been productive of good, I gladly acquiesce in the new arrangement. My main objection was that the very existence of this Society depends on its freedom from all authority beyond the very rigid authority so properly and judiciously exercised by its own officials. To disobey the president in the chair, as all members present know, is to do a thing which may be followed by the direst consequences.

I would wish it to be distinctly understood that I am present to-night, not as one of your teachers, but as a member of this Society, in obedience to the command of one of your presidents; in fact, my former training in this hall bears its legitimate fruit, implicit obedience to authority; respect for the command of the chair remains as strong in me to-day as it was twenty years ago, when I sat on these benches as a student of the Edinburgh School, and an ordinary member of the Society.

Do not for a moment imagine that this obedience is given in a grudging spirit; far from it, I am here with a pleasure which I cannot express in words—I am here one of yourselves, rejoicing in the absence of that barrier between teacher and taught, which, as a teacher, many of you know it is my constant desire to get rid of.

True teaching is essentially a continuous appeal to the personality of the taught; the further a teacher is from his pupils, the greater is the risk of the impairment of his usefulness. The longer I live, I am more and more confirmed in the impression gained during the last eighteen years as Demonstrator, Lecturer, and Professor, that it is only by a perpetual appeal to the individuality of each pupil that his self-growth can be encouraged, and his mental peculiarities developed. In a large school like this, there is a constant danger of dogmatic ministerism and pulpit oratory which can only be kept in check by the teacher remembering that his main duty is to *mould,* not to *recast,* to draw out by encouragement and kindly forbearance the self in each of his pupils, to render each one a true Harry Smith of the Wynd, of well-known fame, who, when he was asked on whose side he fought, answered that he fought for his own hand. Harry Smith retained his personality unsullied.

Loyalty to the Society brings us together linked by a common bond of union, ready to try and do our duty, ready to fight that battle with error and that contest with ignorance, best fought and best contested by a struggle to bring into brighter light the truth; each one working towards that end to the best of his ability, in the way that may seem to him best.

Obedience, then, and loyalty are taught within these walls; so also is hospitality, not from the somewhat selfish motive that we may, as no doubt we do to-night, entertain angels unawares, but because we believe that by opening our Hall to our friends who are not yet members we may be opening their eyes to the value that we honestly believe this Society possesses, as a most important factor in their training as medical men. We have experienced the good ourselves, the ordinary and extraordinary members present all believe in it, and it would be a niggardly thing on our part if we did not give all the students in this city an opportunity of enjoying what we have ourselves enjoyed, of profiting by that from which we have already profited. To-night we give a general invitation; any night in the session at public business,—private business is too serious a matter to admit any outsiders,—a visitor may be introduced by a member, and when the discussion begins the well-known words are uttered by the chair: "Visitors will consider themselves members for the evening." Our Society is pre-eminently hospitable.

In these days this society seems to me personally specially valuable. This is an age of cram. This is an age of swallowing in an undigested form what one hears in the lecture room. The Royal Medical Society is the great preventive against that mental dyspepsia which sooner or later follows such indiscriminate absorption. The food is here peptonised and rendered fit for assimilation. This is also the place where the friendships of early manhood are made and cemented; friendships, I assure you, which are only second in degree and in value to the friendships of school life. The friendships you make in middle life—I cannot yet speak of the friendships of old age—have often as their bond of union some selfish motive; here, as at school, no such motive can possibly exist. There is another class of friendship, which has always been to me a most pleasant one, the friendship between teacher and taught; which will not, I trust, be lessened by anything I might say or do to-night. I can assure you that all true teachers value the friendship of their pupils,—value the yearly recurring freshness of that bond of union which prevents them from feeling old. I know nothing so powerful in preventing mental decay, and preserving youthful views of life, as that constant, daily, hourly intercourse between man and man in the lecture-room, in the laboratory, and in the ward. There is a constant danger of the teacher becoming wedded to old ideas; that danger is lessened and dissipated by that friendly inter-communion with his juniors. No one, however apparently exalted—real worth has little relation to position in this world—can afford to look lightly on the friendship of his juniors; without it he can make no advance, with it he can do much. As your teachers value your friendship, so also, speaking again as a student—we are all students, and must be to the end of our living life—you should lay special value on the friendship of your teachers. I can now look back to the friendship among my teachers of a Goodsir, a Syme, a Christison, and a Begbie, and I can honestly say that from a remembrance of all they did for me, directly and indirectly, in encouragement and example, I am now strengthened to persevere under difficulty, I am enabled to try and do my daily duty, and am kept in constant remembrance, that as a teacher of one branch of medicine, I am also a teacher of men.

To-night I am here in the place of one who is typically the student's friend. As your Dean, he comes in closer relation to many of you than the other teachers in this school. Well-beloved by all of you, he regrets, I feel sure, that his manifold duties—duties which are done for you and for your good—prevent him from opening the 146th session of this Society. I feel his absence, perhaps, more than any of you; and I take his place, as I have already said, from loyalty to the Society,—may I add from loyalty to him;—because you must understand, that as Dean of the Medical Faculty, he has, as the head of the Faculty, over its members an unwritten power, only second to the power which your President exercises over you.

I have spoken of the power your President has over the members of this Society; if, as President, he uses that power aright, he will have made for himself a position which no eminence afterwards attained will ever efface. I desire to-night to illustrate that power, and ask you to go back with me in thought to the evening of Tuesday, the 16th June, 1818. Within the hall of this Society, in Surgeon Square, a meeting was held,—the time of the year indicates that the meeting must have been an extraordinary one. May I remind those present, who are not yet members, that an extraordinary meeting of this Society in the month of June could be called for no idle purpose. Let me refer to the minute-book of that occasion.

"At an extraordinary meeting of the Medical Society, held Tuesday, the 16th June, 1818, it was moved—

"That the Royal Medical Society of Edinburgh, contemplating the heavy loss which the medical world in general, and the School of Edinburgh in particular, have sustained in the death of Dr. Gordon, their late distinguished associate, and anxious to demonstrate its high sense of his zeal and success in the prosecution of those important branches of medical science to which his talents were especially directed, do record in its minutes this memorial of the deep and sincere regret, in which its members unanimously sympathise.

"That the Society, participating in the general gloom which this mournful event has occasioned, do request permission as a testimony of respect to the exalted character of the late Dr. Gordon, to attend his remains to the grave.

"That a letter to this effect be addressed to the relatives of Dr. Gordon, in the name of the Society, equally expressive of its condolence, and of its gratitude for the many and substantial benefits which it has received from him during his short but brilliant career.

"That Dr. Beilby be appointed to transmit, in a letter, to the relatives of Dr. Gordon, the resolutions of the evening."

I can easily understand that every member in town was present, saddened by the sudden death of one dear to them. It is specially worthy of note that although twelve years had elapsed since Dr. Gordon occupied the President's chair, his memory was still fresh in the minds of the members: fresh in consequence of the way he did his duty as a member and as a president. The Society was proud of him, was proud of the position he held in this School. Looking back on the time he had spent in this Society, and the way he had spent it, they felt that they had gained much by his membership, and that he had here laid, by honest work and healthy discussion, that foundation which afterwards bore fruit. I doubt not that if Gordon could now speak to us, he would tell us of the value this Society was to him—of his love for it, as this minute which I have read tells of its love for him. All regard, all affection must be mutual. Take a fancy for anyone, it will only last if that one takes a fancy for you. I remember in my time the sadness occasioned when Drs. Macdougall and Baker, pupils of my own, died when they were Presidents;—men who, if they had lived, would have made their mark in this School. The case of Dr. Gordon, however, must be looked at from a different point of view, and I have thought that a few words, bringing before you his career, might be of use to us all. I certainly have profited by a perusal of his work, although it has been a hasty one, in consequence of the short time at my disposal; perhaps some of you may get some little good by hearing of him.

After the graduation ceremony last year, a former President of this Society (he was President fifty-four years ago) said to me that he would like to see the rooms of the Royal Medical Society. Half-a-century had elapsed since he occupied this chair, and he had been in the interval an extra-mural teacher in Edinburgh, teaching in the very class-room in which Gordon once taught, a Professor in Aberdeen, in Edinburgh, and in Glasgow. In 1877, he resigned the Chair of Anatomy in Glasgow, and now resides in London, a typical example of that freshness to which I have already referred, which is mainly due to a constant fellowship with his juniors for fifty years. He is still a student, intensely interested in every new advance in scientific medicine. Going round my wards on that graduation day, I was struck by the youthful, fresh view he took in all I showed him. Trying to learn from him, I soon found that he only wished to learn from me. You all know Dr. Allen Thomson as the editor of "Quain's Anatomy." He looked back to the time spent in this Society with affection. He spoke to me of the men with whom he had been associated; he carefully examined the pictures and the busts which adorn its walls; pointing to the bust of Dr. Gordon he said, "That was a good man."

(*To be continued.*)

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## FIVE CASES OF VERY SEVERE INJURY SUCCESSFULLY TREATED BY IRRIGATION.

### REPORT, WITH REMARKS, BY EDWARD ORR MACNIVEN, M.B.C.M. EDIN.; CONCLUDING REMARKS BY DR. MORTON.

THE following reports, from the practice of Dr. Morton in the Royal Infirmary of Glasgow, will be found of much interest:—

CASE 1.—J. C., *æt.* eighteen years; railway servant; was admitted 9th June, 1883.

*Injury.*—Severely crushed foot.

*Cause.*—From three trucks full of stones passing over it.

*Examination.*—The foot was found to be greatly swollen, and the parts badly bruised and lacerated; so much so, that every one thought amputation was the only resource. Even Dr. Morton considered it a most extreme case to try to save. However, he determined to give it a chance, and accordingly at once ordered irrigation with 1·40 carbolic lotion.

The bowels were kept carefully regulated; and quinine in 5 grs. doses was given night and morning. The toes gradually lost all their vitality, and had to be removed. The foot progressed favourably, till one morning, when Dr. Morton was away from home, the temperature somewhat suddenly went up to 105° F. The surgeon acting for him became so alarmed at this, that he thought amputation was the only chance to save the patient's life; but, however, he determined to delay the operation till Dr. Morton saw the patient next day. Dr. Morton on his return ordered a smart purge, and made one or two incisions into the foot, letting out a good deal of pus, and at the same time he removed a quantity of sloughing tissue. The temperature then fell to 102° F., and gradually came down till it became normal.

Charcoal poultices were ordered at night, in order to separate the sloughs and clean the parts. After this the inflammation gradually abated, the swelling became less, and the parts assumed a healthy appearance. Carbolic lotion, on one occasion, was changed for a weak solution of chloride of zinc (2 grs.-℥i.); but it did not answer nearly so well, as the foot did not keep so sweet, and the patient seemed to complain more of pain.

On 3rd July, the irrigation was stopped, and the foot was dressed with terebene oil.

On 8th July, it was grafted with skin from an amputation, and dressed with boracic lotion. The foot gradually improved, and was almost well, when, on 15th August, the patient unfortunately had to be removed to a medical hospital for treatment of a medical ailment.

CASE 2.—J. S., *æt.* thirty-five years; labourer; admitted 30th May, 1883, suffering from the effects of a bite from a horse.

*Examination.*—There was a wound about three inches in length at the upper part of the fore-arm, and the muscles were bruised and lacerated, and protruding from the wound.

Hæmorrhage at first was somewhat difficult to restrain. The arm became greatly swollen, and exceedingly painful. Was irrigated with cold water; and occasionally the wound was carefully washed out with carbolic lotion. Any sloughing tissue was removed, and incisions were made to relieve tension. He was allowed ℥ii. of whisky daily, and ordered five grains of quinine night and morning.

*Result.*—The patient made a perfect recovery, and had the full use of his arm.

Was dismissed 15th July, 1883.

CASE 3.—J. O., *æt.* twenty-one years; admitted 4th June, 1883, suffering from a severe wound of the wrist-joint produced by a donkey-engine.

*Examination.*—On examination of the wound it was found that a number of the heads of the carpal bones were broken across, and had to be removed. The result of this was that the bones of the wrist-joint became freely movable. The surrounding tissues were very much bruised and lacerated.

*Treatment.*—The wound was carefully washed out with carbolic lotion, stitched up, and dressed with terebene oil. Notwithstanding this, the hand and arm swelled up, and became exceedingly painful. Dr. Morton at once ordered irrigation, along with a charcoal poultice at night. Quinine was given twice daily, and the patient was allowed ℥iv. of brandy daily. The result of this treatment was that the hand and arm at once began to improve, the wound looked clean, and the swelling had almost disappeared. It was then dressed with terebene oil, and the irrigation was stopped. In a day or so Dr. Morton went from home, and the surgeon then acting for him changed the dressing to iodoform, and ordered the arm on a splint. Most unfortunately, large abscesses with sinuses resulted, and the hand and arm swelled, along with acute erythematous redness. The surgeon then on duty thought it might end in amputation; but Dr. Morton, willing to persevere with his former treatment, on his return again ordered irrigation. Free incisions were made into the abscesses, and charcoal poultices applied at night. The result of this was that the inflammation abated, and the wound assumed a healthy appearance. It was dressed afterwards with terebene oil, and at the end of August the wound had completely healed.

*Result.*—The wrist-joint was stiff, but he was able to move his fingers somewhat.

CASE 4.—J. C., *æt.* twenty years; baker; admitted 19th June, 1883.

*Injury.*—Severe lacerated wound of hand, in which the skin was turned over from the knuckles to two inches above the wrist-joint.

*Treatment.*—The parts were thoroughly washed with carbolic lotion; the skin adjusted with sutures; and it was dressed with Lister's ordinary antiseptic dressing. Nevertheless, owing to the great bruising of the tissues, the parts sloughed; and inflammation, resulting in suppuration set in, along with great swelling and erythematous redness of the fore-arm. Several incisions were made in order to relieve tension, and the parts were ordered to be irrigated with carbolic lotion. Occasionally a charcoal poultice was applied at night. Nearly the whole of the skin (except a small island on the under surface of the hand) both on the front and back of the hand, and for nearly two inches above the wrist, sloughed off, so that there was no connection between the skin of the hand (or rather that of the fingers) and the skin of the fore-arm.

*26th June.*—Parts looking well, inflammation abating; ordered 6 grs. calomel, to be followed with a Seidlitz powder in the morning, as a purge. Quinine was given twice daily; and the patient was allowed a stimulant.

*3rd July.*—Granulations looking very healthy; erythema entirely disappeared; irrigation discontinued; dressed with terebene oil.

*8th July.*—Discharge very much less. Grafted with skin from an amputation, and dressed with boracic lotion.

*13th October.*—Wound almost entirely healed; wrist-joint freely movable, but fingers stiff.

CASE 5.—M. L., *æt.* 14 years; admitted 17th September, 1883.

*History.*—Ten days before admission the patient's hand was accidentally caught between two steam-rollers, and severely crushed and burnt. The hand was covered with lint, and oil poured on it from time to time—in fact it was treated for a burn, and it was only uncovered on the day of admission. After removal of the lint it was found that the bones of the fingers were entirely destitute of flesh; the hand and arm were greatly swollen and erythematous. The supracondyloid gland and those of the axilla were enlarged, and painful to the touch.

On the following day, Dr. Morton removed the four fingers, along with about half-an-inch of the metacarpal bones. The thumb, being uninjured, was preserved. The parts were at once ordered to be irrigated with carbolic lotion (1-40). This treatment was continued for ten days, when the irrigation was stopped, and the wound was carefully washed out with 1-20 carbolic lotion. It was then dressed with carbolic gauze dipped in carbolic and glycerine (1-30). The temperature on admission was 104° F., and in the evening after the operation it fell to 102·4° F. For the first five days after the operation the average evening temperature was 101° F., the maximum evening temperature being 103° F., occurring on the third day after the operation. The average morning temperature for the same time was 99·5° F., the maximum morning temperature being 101·2° F., and occurring on the same day as the maximum evening temperature. The temperature after the fifth day always kept normal. It is now slightly over a month since the operation was performed, and the stump presents a healthy granulating appearance, the sawn extremities of the metacarpal bones being entirely concealed. I may add that after irrigation was stopped, the wound on an average did not require dressing oftener than once every four days.

*Remarks by E. Orr Macniven, M.B., C.M.*—These results are certainly encouraging, more especially to the conservative surgeon, who trusts to the invaluable recuperative powers of nature. They cannot easily be excelled. They illustrate the value of irrigation as a method of treating wounds where the parts are badly crushed—where there is contusion, laceration, and bruising of the textures—and, as a consequence, we expect inflammatory action with sloughing to set in. The constant abstraction of heat from the part, by the continuous application of cold, allays the inflammatory action, and reduces the swelling, while at the same time the injurious discharges are removed as fast as they are formed, thus preventing septic absorption. It is essential that all constitutional irritation should be removed by abstinence, rest, and a free aperient. The patients experienced comfort from its soothing influence, acting, as cold usually does, as a local anæsthetic; and the pain and tenderness soon disappeared.

Occasionally a charcoal poultice applied at night will be found most beneficial in cleaning the parts and separating the sloughs. Carbolic acid solution seems especially well adapted for the purpose of irrigation, both from its being a volatile antiseptic, and from its soothing influence on the tissues. In short, to sum up briefly, the advantages of irrigation may be stated as follows:—

1. That it fulfils the earliest indication of treating hyperæmic and inflammatory conditions—viz., by applying cold (which seems not to be duly appreciated by most surgeons of the present day).
2. That the parts are kept constantly under observation.
3. That it ensures complete rest; and the parts can be examined without the slightest movement.
4. That cumbrous dressings, which retain discharges and irritate wounds, are avoided.
5. That the discharges are removed as fast as they are formed, and septic absorption is thus prevented.
6. That it is a cheap method, and can be easily applied in all kinds of practice.

*Remarks by Dr. Morton.*—These cases now narrated by Dr. Macniven attracted the attention of all who saw them, chiefly because they furnished examples of conditions which rendered it doubtful whether the limbs could be saved by any mode of treatment. It is not too much to say that even now amputation would probably have been advised; a very few years ago, this would have been certain. A surgeon who saw these patients at an early period predicted not only failure, but disaster, in the crushed foot; and the other three—the neglected horse-bite, the open wrist with its partially sawed bones, and the denuded wrist—looked almost as formidable. The last of these, where the integument was so much destroyed, has been as usual the most tedious in healing over. It is now many years since this practice was followed in my wards, and many remarkable instances of recovery have occurred. These, however, have been scattered over the time now named; and, although very encouraging, yet they do not form such a secure foundation for the establishment of any mode of management as the occurrence of a number of synchronous cases. I am satisfied that many limbs and lives may be saved which seem hopeless under any other system. The disadvantages are slight, and may be said to be—(1) The patient is confined to one position for some days or weeks; but even this can be modified, and we do not find that patients complain much of it. (2) Another disadvantage is the exposure of the wounded parts to the view of other patients in a common ward; but this may be obviated by covering the parts with a covered cage, as in what has been called "compensatory irrigation." One manifest advantage of this process of irrigation is that it can be carried out in the poorest and most remote dwellings; and there it can be at once set in force wherever you can find a skein of worsted and a basin of water, elevated upon a small basin-stand or a common chair.

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# A CASE OF SPONTANEOUS VERSION.

By A. St. Clair Buxton, F.R.C.S.

THE following case is interesting, not only on account of the infrequency of its occurrence, but as a study of one of the means employed by nature to bring about a safe and speedy termination to labour commencing abnormally.

Having been engaged to attend Mrs. Douglas B., a fine healthy woman, *æt.* twenty-five, in her second confinement, I was sent for (at 11 P.M.) in due course of time, and on examination I found that the os uteri was dilated to about the size of a crown-piece. The membranes had ruptured early, and all the liquor amnii had escaped.

The presentation was the right upper extremity, the hand and forearm being *in the vagina.*

The pains, which were sharp and prolonged, occurred every fifteen minutes or thereabouts.

I attempted to return the hand and arm into the uterus, and seize the feet with a view to turning at once.

This, however, I found impossible to effect, on account of the firmness of the contractions of the uterus.

My wisest alternative appeared to be to obtain some chloroform, and perform version by its aid. I accordingly left the house (not having a messenger to send), and called on a friend, Dr. A., to borrow the anæsthetic. I was absent about half-an-hour, and Dr. A. returned with me, kindly volunteering his services as chloroformist.

On again examining my patient, it was found that the hand and arm had entirely receded into the uterus, and that spontaneous version had taken place—the vertex, in the *first* position, now presenting.

The patient's bowel was unloaded by enema, and the bladder emptied; and from this moment the labour progressed quite normally.

The child was of full term, but small (6 lbs.). He is living, and quite healthy. The mother also, has made an excellent recovery. She tells me that her first child was born (in India) without medical assistance, and that the presentation was a breach, or, as she expresses it, "the child was born *sitting*."

# HOSPITAL LETTER.

## LOCK WARDS IN THE ROYAL INFIRMARY OF EDINBURGH.

WE have selected these wards for our first letter, because the addition of a male Lock Ward is one of the most recent improvements, not only for the treatment, but also for the study of disease in the Edinburgh Royal Infirmary. It cannot be said that this is an innovation altogether, for in previous years a male Lock Ward did exist in the old Royal Infirmary, but about ten years ago it was closed to give extra beds during an epidemic, and was not again reopened until about a year ago. During the intermediate time, the systematic clinical teaching of venereal diseases was dependent on the patients in the female Lock Ward, an arrangement which has many manifest disadvantages. The importance of a practical knowledge of these diseases in civil and military practice can hardly be overrated, and since there are many differences in the local manifestations and complications of gonorrhœa, chancroids, and true syphilis in the two sexes, and since the early symptoms of the latter disease were comparatively rarely seen among the reckless and outcast class who constitute the most frequent inmates of the female ward, it was desirable, from a teaching point of view, at least, to reopen the male Lock Ward. An additional reason was that many male patients, in a wretched condition from neglected venereal sores, had previously to be refused admission from want of proper accommodation for such cases. When Dr. Maclaren succeeded to the charge of the female Lock Wards, he again represented these views to the Managers of the Infirmary, and was supported by a largely signed requisition from the students; and the result was a ready acquiescence to the request. Accordingly, now there is a ward of fourteen beds, with a private ward of two beds for male patients, and two wards, containing in all fourteen beds, for female patients, making altogether thirty beds for the treatment of venereal diseases in the two sexes. There is no private ward for female patients. The want of such is, however, often felt, for the treatment of married women who are the innocent victims of syphilitic infection, and its presence would be a great gain.

The management of the wards is conducted under Dr. Maclaren by a non-resident clerk, who is always a qualified practitioner, and by student clerks who have charge of three or four beds each. To allow as many as possible to avail themselves of the advantages afforded by these offices, they are held for two or three months only. The cases are taken on special charts drawn up on the plan suggested by the Collective Investigation Committee, giving specific points which can be rapidly filled in by the clerk when he is making the necessary investigations.

A clinical demonstration is given twice weekly of the male cases, at 1 P.M. on Wednesdays, and of the female cases, open to fourth year students only, at 12 noon on Saturdays.

At these visits, after some general introductory sketches on the nature and relations of the diseases, their form and complications are illustrated as systematically as possible from the patients in the wards, and, where possible, this is supplemented by the exhibition of sketches and casts, taken when the symptoms are presented in their most typical condition. The various operative procedures required are also shown by performing them as often as possible in the presence of the students. It is also intended to illustrate the subject by reference to anatomical preparations of the parts concerned, and by demonstration of microscopic sections to illustrate some of the commoner pathological conditions. After the demonstrations have gone on for some time, an examining class will be formed for those students who are willing to have the benefit of instruction carried on in this way.

As yet the arrangements for the winter have hardly been completed, but as the Managers have kindly afforded every facility to Dr. Maclaren in the carrying out of his ideas, there is every reason to hope that students will have opportunities for studying those diseases which they have not enjoyed before. So large a number have availed themselves of those special cliniques that it will be necessary to make provision for the efficient demonstration of the cases. This, however, is in process of arrangement.

As to the methods of treatment employed, a few words may be of interest.

Gonorrhœa in the male is, if recent, at first treated by rest, laxatives, milk diet, and frequent simple warm water injections, and sedative, antacid internal remedies. Afterwards the patients are put on ordinary diet, and slightly astringent injections are used after urination; and when the discharge is subsiding specific remedies are given internally. No form of abortive treatment is ever attempted. In the female, very frequent injections, five or six times daily, are insisted on, the fluid used being a weak solution of permanganate of potash, or carbolic acid; dry wadding being kept in the vulva to absorb discharge, and prevent excoriations.

By the increased frequency of these injections it has been found that the average stay of the patients in hospital has been diminished from thirty-two days to twenty-six days.

Soft sores are treated in the female with iodoform; but in the male, and when defined and freely accessible in the female, their surface is destroyed with chloride of zinc paste, the resulting sore being dressed with iodoform, and, of course, thorough cleanliness maintained.

In acute simple bubos and peri-adenitis, after free incision and washing out with weak carbolic lotion, the wound is dressed with dry absorbent cotton wool, enough vasiline being smeared at the edges to prevent the parts from sticking. Indolent bubos have sponge pressure applied; and virulent bubos, the result of chancroidal infection, are treated after incision as open chancroids.

In the constitutional treatment of syphilis in its first two stages, the tonic use of mercury after Dr. Keyes' plan is followed, and pills containing half-a-grain of grey powder and half-a-grain of desiccated sulphate of iron are administered in a gradually increasing number—or, as a substitute, one-sixteenth of a grain of bichloride of mercury is given, gradually increased. In either case, as soon as the physiological symptoms appear, the dose is halved, and then maintained at that rate. This should be kept up for from six to eighteen months; but, as patients are often unable to continue their medicine after leaving hospital, they frequently apply for readmission, where, had it been possible to supply them with medicine, they might have remained at home, and have been treated as out-patients.

In cases where from any cause the administration of mercury by the mouth is contra-indicated, resource is had to the method either of inunction or of vapour absorption by the skin, as may seem most suited to the condition of each patient.

In the later forms of syphilis, one-sixteenth of a grain of the bichloride is given with ten grains of iodide of potassium; while in tertiary syphilis, ten grains of the latter drug are given—this is gradually increased. If iodic acne should appear, the dose is at once halved and maintained.

As to the effects of the tonic treatment of syphilis by mercury, Dr. Maclaren has been carefully testing the results on the blood corpuscles, and we hope soon to have a paper from him on the subject.

CHARLES W. CATHCART.

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# *REVIEWS.*

## On the Treatment of Wounds and Fractures.

By SAMPSON GAMGEE, F.R.S.E.

THIS book is the outcome of thirty years' clinical experience, and is written by a distinguished surgeon of brilliant ability and cosmopolitan knowledge. It is full, therefore, of valuable suggestion and instruction for all, although the lectures it contains were addressed to students.

The leading motive of the work, and that which will attract the chief attention of the surgical reader, is also the subject of the day—wound treatment.

I suppose that the distinction between a compound and a simple fracture, an open wound and a bruise, must have pressed itself upon the attention of surgeons from the earliest times. The natural conclusion was, of course, that the contact of the surroundings with the interior of the body was the cause of this distinction; and the first important deduction was subcutaneous surgery. But it was plainly desirable to put all open wounds in the same condition as if they were closed; and to attain this end it was necessary to determine exactly what in the surroundings of the body produced an injurious effect.

Some found it in the oxygen, some in the nitrogen, and some in the carbonic acid of the atmosphere. But at length came the theory of putrefaction, and I suppose it may be said that surgeons are now agreed—

1. That the putrefactive decomposition of the fluids is one reason why a wound differs from a bruise; and,
2. That this putrefaction is produced by microbia.

It is difficult, therefore, to understand Mr. Gamgee's position when he says: "The intrusion of the germ theory into this discussion has been a very unfortunate one." It is really the whole matter. The only difference between a compound and a simple fracture is the breach of surface. The cause of the difference is, therefore, external to the body. Does the germ theory explain this difference in whole or in part?

It is of little moment how much credit Lemaire, or Declat, or Maisonneuve, or Lister should have. They were all possessed of the same idea, and the deductions which they drew, and the treatment of wounds which they adopted, even to the particular germicide, have a quaint family resemblance. But it is of importance for us to know that the theory is true, because being true, we must found our practice upon it.

What Mr. Gamgee doubtless feels, and rightly feels, to be wrong, is the setting up each detail of the antiseptic system as a fetich, and the suggestion that to modify a single item is to have blood-guiltiness upon one's soul. But, after all, antisepticians are not the only fetich worshippers. To be earnest is often held as meaning to be true. Surgeons have believed in irrigation and in dry dressing, in using exhausted receivers, and in the open treatment of wounds, and by statistics and clinical cases have maintained theirs to be the only satisfactory system. What we want is not only empiricism, but a rational theory; and the theory must either meet all the conditions of the case, or be recognised as incomplete and only partially correct.

Our aim, then, should be to discover what are the external influences which produce a deleterious effect on wounds. We put aside all internal and constitutional causes, because, given the same amount of injury, their effect is, in the *first instance*, equal, whether the wound be closed or open. Now, these external influences may be mechanical, chemical, or organic.

There can be no question of the importance of the mechanical. Mere contact will do no harm, but it is otherwise with alterations in pressure and friction. A breach of surface necessarily leads to change in the tension which is given to all parts of the body by the fascial and cutaneous envelopes. Professor Hamilton of Aberdeen has founded on this an ingenious hypothesis as to the formation and growth of granulations. Hernias of the testicle, brain, or muscle are prominent examples of the effect of diminished pressure.

On the other hand, the results of increased tension in producing inflammatory atrophy and ulceration are familiar to all.

There is thus a degree of pressure which is appropriate to healthy nutrition, and any departure from which is injurious in proportion to its severity and continuance.

The effects of friction are similar. According as it may be intermittent or continuous, moderate or severe, it stimulates healthy nutrition, produces hypertrophy, or excites inflammation. Moreover, its application determines these varying results according to the part subjected to it. If the friction of a soft hair can produce ulcerative conjunctivitis, it is easy to understand how parts no longer covered by skin may be caused to inflame by similar or even slighter mechanical irritation.

When one considers that minute chemical adaptation that exists between the blood and tissues, and how small an alteration of the circulating fluid, say by the introduction into it of a little iodine or belladonna, may produce localised inflammations of considerable intensity, it becomes evident that destruction of skin may allow the application of like irritants whether through the atmosphere or by immediate conveyance to the wound.

I have already said, and Mr. Gamgee from portions of his book evidently will also allow, that in the opinion of the profession it is proved that the action of minute organisms, brought into contact with a wound, may either in themselves or through decomposition of the fluids, produce inflammation, and, if circumstances favour absorption, the most serious constitutional disease.

We have, then, three causes of the difference between open and closed wounds—the mechanical, chemical, and organic. They interact and mutually aggravate each other; but there can be little doubt that the last is the most frequently operative, by far the most dangerous, and the most difficult to counteract.

Having determined these fundamental principles, the next duty is to apply them in practice. How should we dress our wounds? Plainly the essentials are rest and cleanliness, understanding them in their completest physiological and scientific meaning. Mr. Gamgee goes far to meet these requirements. He aims at rest first by infrequent dressings. He next adjusts, as far as may be, the tissue tension to that which is most suitable by the pressure of cotton wool, which also, being made absorbent, prevents the evils of excessive tension from accumulation of fluids. One may go further, and say that to a large extent he is, what, probably, he does not care to be called, an antiseptic surgeon. He practises, we may be sure, that scrupulous cleanliness which has always distinguished British surgery; and once his wound is dressed, there can be no more efficient filter for organic impurities than dry cotton wool, even when mixed with blood clot.

Moreover, by the dryness of his dressing he avoids the contact of chemical irritants introduced by watery and antiseptic applications, and renders the soil unfavourable for the propagation of germs.

I have also for some time been working on similar lines,—more impressed, however, than Mr. Gamgee by the necessity for complete antiseptic precautions. I have discarded the spray on grounds which I have elsewhere discussed, and have also avoided the chemical irritation of a watery solution of phenol.

But I have thought it right to use an antiseptic to smear the wound at the operation and dressings. It may be admitted that much confidence can be placed in the germicide properties of healthy tissues, and that contamination with germs comes twenty times by the fingers and instruments for once through the air. Still, the once is worth guarding against, even at the risk of a little chemical irritation. I use carbolic glycerine, of the strength of 1 to 20, because I have found it more effective than even chloride of zinc in purifying septic wounds. The phenol, mingled with glycerine, is thereby wonderfully mitigated; but for healthy wounds pure glycerine may by itself suffice. It is not without objection, in so far as it induces by its attraction for water a strong flow of bloody serum during the first few hours. But the objection is small compared with the advantage gained.

I use salicilic wool instead of Mr. Gamgee's absorbent cotton, because it further diminishes the risk of putrefaction passing backward along the discharge.

In other respects my practice is identical with his.

I have already published results with this dry and absorbent dressing. Since abandoning the spray, I find that the proportion of cases which run an aseptic course, as tested by the microscope and cultivation, is as great as before. The largest operation wounds have the drainage-tube removed at the end of forty-eight hours, and are often not dressed again; and when in the smaller no drainage has been used, as amputation of the fore-arm or excision of the mamma, they frequently remain untouched till they are healed.

I suppose that other methods will also give good results; nay, even the maligned water-dressing may be best in some septic cases; but it cannot be doubted that they will only be successful in so far as they fulfil the demands of physiological rest and scientific cleanliness.

JOHN DUNCAN.

## **Surgical Applied Anatomy.** By FREDERICK TREVES, F.R.C.S. London: Cassell & Co.

THIS work is one of a series of "Manuals for Students of Medicine" now in course of publication by Cassell & Co. The first of the series was on the Elements of Histology, by Dr. Klein, and it is no small praise to say that this volume is fully up to the high standard with which the series began. It is certainly one of the best text-books on the subject with which we are acquainted. There are, however, a few mistakes and omissions which we think might, with advantage, be corrected and supplied in a future edition, which we doubt not will soon be required.

In describing the surgical anatomy of the ear, the normal appearance of the outer surface of the membrana tympani is not given; and in an excellent chapter on the orbit and eye, there is a similar omission of the ophthalmoscopic appearances of the retina.

Mr. Treves states that the bony roof of the external auditory meatus is *thin*, being separated by only a thin layer of bone from the cranial cavity, and that consequently meningitis is liable to occur in connection with abscesses or injuries of the meatus. Such a complication is very rare, as fortunately the osseous roof is *thick*, and in this respect forms a very marked contrast to the roof of the tympanum. The membrana tympani is stated to be nearly horizontal at birth, the angle being one of only 10°. This is a statement often found in text-books, but it is an erroneous one. Dr. J. Pollak, who specially investigated this point, found that there was no perceptible difference between the infant and the adult in this respect. The results of Dr. Pollak are in accordance with our own observations. At page 490 will be found a list of the structures divided in Syme's Amputation, and amongst them we noticed the posterior tibial vessels. Now, if the incisions are made according to the original directions of Syme, the posterior tibial vessels are not divided, but the internal and external plantars. This is important, as the nutrition of the heel flap is partly derived from the internal calcaneal branches which arise from the posterior tibial near its termination, and from the commencement of the external plantar. There are only a few other statements which we would venture to dispute, while we readily acknowledge to have gained many useful hints from the perusal of this work.

J. Symington.

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## *REPORT ON SURGERY.*

### *RECENT PAPERS.*

1. **Tiffany, L. M.**—The Prone Position during Operations on the Jaws. *Transactions of Medical and Chirurgical Faculty of Maryland*, April, 1883, p. 256.
2. **Davidson, J. M'Kenzie.**—The Lithophone, with Appendix by Professor Ogston. *Lancet*, 3rd November, 1883.
3. **Karg.**—Zur Behandlung von Oberschenkelfracturen bei alten Leuten. (On the Treatment of Fractures in the Upper Part of the Thigh in Old People.) *Archiv. f. kl. Chirurgie*, vol. xxix. pt. ii. p. 35.
4. **Lister, Joseph.**—Treatment of Fracture of the Patella. *British Medical Journal*, 3rd November, 1883.
5. **Hartmann.**—Observation de Purpura Hémorrhagique d'Origine Traumatique. *Revue de Chirurgie*, September, 1883.
6. **Boegehold.**—Weber die Verletzung der Ductus Thoracicus. (On Wounding of the Thoracic Duct.) *Archiv. für klin. Chirurgie*, vol. xxix. (1883), p. 443.
7. **Kümmell.**—Zur Myositis Ossificans Progressiva. (On Myositis Ossificans Progressiva.) *Archiv. f. klin. Chirurgie*, vol. xxix. (1883), p. 615.
8. **Walsham, W. J.**—On an Easy Method of Posterior Rhinoscopy.—*Lancet*, July, 1883.

1. **Dr. Tiffany on the Prone Position in Operations upon the Jaws.**—In order to prevent the passage of blood backwards during operations on the mouth, Dr. Tiffany recommends the following:—"The patient having received a full dose of morphine hyperdermically, and subsequently anæsthetised, is turned face down, the upper portion of the thorax extends beyond the table, being supported by an assistant at each shoulder—respiration being thus less laboured. A third assistant supports the head, standing behind the shoulder carrier so as to be out of the operator's way. The face being raised towards a window, light is obtained; while blood from incisions, &c., runs out of the mouth into some vessel placed conveniently." Dr. Tiffany has used this method with advantage on several occasions in removing the upper jaw. In the last case "the portion of upper jaw removed extended from the left lateral incisor to the last right molar; both nares were opened, yet bleeding caused no anxiety, for it flowed from, not towards, the larynx, and escaped externally."

2. **Dr. Davidson on the Lithophone.**—A valuable and very simple instrument for detecting small stones in the bladder is described by Dr. Davidson. He first drew attention to it in July, 1882, being at the time unaware that the same idea had occurred to any one else before. As he now tells us however, the idea was first suggested in the *Irish Hospital Gazette*, in 1873. The description is as follows:—"A piece of India-rubber tubing, about twenty-six to thirty inches long, with a small bore three-sixteenths to an eighth of an inch in diameter, is employed. About an inch from one of its ends it is folded on itself, and this part is then held tightly against the handle of the sound, care being taken that the long part of the tube that goes into the ear lies next to the handle. By this simple means greater intensity of sound is conveyed than by a tube of much larger bore, attached by merely slipping it over the handle. . . ." The other end, fitted with an ear-piece, remains in the ear without being held. Modifications of the above are introduced so as to make a special instrument, but the principle is the same. To show its delicacy, Mr. M'Kenzie states that he could recognise the contact of the sound thus mounted with the lithophone, with a grain of sand weighing less than 1-500th of a grain lying in cotton wool. Professor Ogston appends a few remarks strongly in favour of the instrument, and quotes a case where, by its aid, a small stone was recognised which could not be detected in the ordinary way.

3. **Karg on Treatment of Fractures of the Upper Part of the Thigh in Old People.**—The method advocated in this paper is designed to obviate the constitutional dangers which usually arise when old patients are kept for a length of time in the horizontal position, as is rendered necessary with the ordinary application of splints for such fractures. This method may be looked on as a combination of the double inclined plane and ordinary plaster of Paris splints. It was devised to meet the requirements of a case in the clinique of Professor Thiersch. The patient, aged sixty, showed marked symptoms of senile decay in skin and arteries, rigid thorax, and emphysematous lungs, and on admission had diffuse bronchitis, with evening rise of temperature, and a copious muco-purulent expectoration. By a fall he had fractured his right femur at the junction of the upper and middle thirds. He was first placed in an extension apparatus till the swelling from extravasated blood should have subsided, but in five days the bronchitis became serious. The temperature rose to 39·0 C., and symptoms of infiltration of lower part of right lung appeared, besides irritation of the skin by the flannel extension band in spite of every care. Therefore, in preparation for the regular application, Mojsisovic's extension

apparatus was applied with horizontal position of the upper part of the body. Next day, the knee and hip-joints being flexed to a right-angle, and the thigh being extended, leather splints were applied to the thigh, and the whole limb enveloped in plaster of Paris from the foot to the pelvis inclusive. The shell of plaster was kept as light as possible, except in the front of the groin, where it was made extra strong. When the plaster had set, the patient was raised so that his body was inclined to nearly an angle of 60°, and the heel came upright in the bed. He remained till cured in this position, and suffered no inconvenience from the splint. He had a certain amount of freedom of movement, and his position could be altered for all necessary manipulations without causing him any pain. In the second week he was easily transferred from the bed to an arm-chair. The effect on the bronchitis was at once marked. Fever disappeared next day, the mucous rattling steadily diminished, and the previously sinking patient began to mend.

The advantages claimed for this method, besides those already indicated, are its non-liability to slip, and its independence of the co-operation of the patient. Good extension being once applied under chloroform, is not afterwards altered.

An objection to be guarded against is the possible stiffness of the joints, kept so long at rest and flexed at a right-angle, especially in the case of old people. To avoid this, the bandage should not be kept on longer than is necessary, and should be reapplied if need be, the opportunity being taken to inspect the condition of the joints.

**4. Lister on the Treatment of Fracture of the Patella.**—This paper, which was the introductory address to the Medical Society of London, is designed to show the value of direct suture of the fragments when performed antiseptically in cases of fracture of the patella. Three instances of suture of the olecranon are first narrated, because it was in a case of this kind that the method was first employed. Of fracture of the patella eight cases are given; one a case of ununited fracture, was in the practice of Dr. Hector Cameron; the others were performed by Professor Lister, two being for ununited fracture, the others being recent cases. The result was a perfect success in all; one of the ununited cases, however, having given some trouble, owing to the stiffness of the joint and bad position of the upper fragment, the cure being much delayed in consequence. The method of operation employed is to make a longitudinal incision over the front of the patella, to pare off the fibrous tissues from the fragments in old cases, and to clear away the clots in recent ones. Then a bradawl is used to pierce each part of bone, passing from some little distance from the line of fracture on the anterior surface, obliquely downwards towards the cartilaginous surface. Care is taken to adapt the broken parts so that the cartilaginous surface is left quite smooth. A single suture of silver wire about one-sixteenth of an inch in thickness is passed through the track of the bradawl immediately on withdrawing it, the broken pieces are then drawn together, and the wire having been twisted, its ends are cut off close, and hammered down. The joint is drained by thrusting a pair of dressing forceps through the tissues on the inside of the joint and cutting through the skin where their point protrudes, then catching the tube between the blades, it is thus drawn into the joint. The operation wound is sewn up, and sometimes a small drain left in for a day or so. Usually the patient begins to walk from six to eight weeks after the operation, and when the parts are sound the cicatrix is opened up and the wire removed, although this part of the proceeding is not mentioned in every case. The operation was first employed for ununited fracture of the olecranon and patella, but Professor Lister points out that it is much simpler and more satisfactory in recent cases, as the ends of the bone are better adapted for union, and as there is no troublesome drawing up of the quadriceps extensor, which is apt to become a fixture.

CHARLES W. CATHCART.

5. **Hartmann on Purpura Hæmorrhagica of Traumatic Origin.**—Some light may be thrown on the pathology of purpura by the case recorded by Hartmann in this article. The patient, aged eighteen, had been pushed off a bench by a companion, and had fallen heavily on his back, bruising the tissues over the spine. An hour after the accident he observed that spots of purpura were beginning to appear over the limbs. These were found to consist of an immense number of small hæmorrhagic points, the largest being of the size of a pin-head. They were most abundant on the anterior and external aspect of the limbs, but were also to be seen on the posterior surfaces, on the front of the chest, the neck, face, and tongue. There was a large ecchymosis along the spine where the patient had come in contact with the ground. The next day there was profuse hæmaturia, but at no period did bleeding occur from the mouth or intestines. Under treatment with ergot a complete recovery was made in about a month.

Hartmann ascribes the purpura in this case to the blow, without, however, committing himself absolutely to the theory that it resulted from injury to the spinal cord, although this seems the most probable explanation. He points out that in cases of hæmophilia a traumatic exciting cause is not unfrequently met with, citing a case recorded by Percy Kidd of a child in whom that disease followed a blow on the head. He has not, however, been able to discover any recorded instance of purpura hæmorrhagica being brought on in that way.

6. **Boegehold on Wounds of the Thoracic Duct.**—The attention of the writer of this article was turned to this subject by observing a case of tumour in the neck, in the course of the extirpation of which the thoracic duct was injured, close to its junction with the subclavian vein. A pad of salicylic wool firmly applied served to arrest the extravasation of chyle which took place, and no bad results followed the accident. So many various opinions have been given in the literature of the subject as to the result of such injuries (which is very fully given here), that Boegehold resolved to experiment on animals, with the hope of arriving at some definite conclusions. Operating upon dogs, he found that injury of the duct in the thorax was not necessarily fatal to life. Collateral tracts very quickly developed, and conducted the chyle into the blood-stream. There is, however, great danger from the compression which the chyle, when extravasated into the pleural cavity, exerts upon the lung and heart. The diagnosis of injury of the duct is very readily made by puncture, and the withdrawal of the characteristic milky fluid.

7. **Kümmell on Myositis Ossificans Progressiva.**—The first recorded observations of this very rare and curious disease appear to have been those of John Freke and Robert Copping in the "Philosophical Transactions," in 1740. Since then some twenty-four cases have been placed on record, the last of which is fully detailed in this article. The patient was a boy who suffered from congenital deformity of the vertebral column. In his second year there appeared large swellings over the muscles of the back, which, after lasting some time, became gradually absorbed, and ultimately assumed such hardness as to resemble exostoses. When twelve years old, there came on a degree of contraction of the left knee, and the muscles in that neighbourhood, as well as those of the

neck, back, and arms, and the psoas muscle, became thickened, and underwent ossification.

The process appears to have three stages. The first stage consists in infiltration of the muscular tissues and tendons, along with œdema in the neighbouring parts, which gives rise to a feeling of fluctuation. In the second stage—that of fibrous induration—there is observed a connective tissue hyperplasia of the muscles, with consequent shrinking. The third stage consists in ossification, and this is not merely a calcareous degeneration, but a true formation of bone tissue. In a portion of the biceps which was excised, it was possible to recognise healthy muscle, connective tissue, cartilage, and bone, proceeding from the periphery to the centre.

Kümmell regards this myositis ossificans progressiva as a hereditary constitutional disease, which commences in connection with the spine and muscles of the back, and affects primarily the group of the connective tissues—bone, tendon, fasciæ, and intermuscular connective tissue.

J. GRAHAM BROWN.

8. **W. J. Walsham on an Easy Method of Posterior Rhinoscopy.**—There are many cases where the examination of the posterior nares would be an important aid in diagnosis, and as the difficulty of the manipulation is well known, we gladly welcome any device which will make it simpler. "A piece of soft red rubber tubing, about an eighth of an inch in diameter, is introduced into the nostril, and pushed very gently along the floor of the nose till it presents just below the soft palate. It is then gently seized with a forceps, drawn out through the mouth, and loosely tied across the upper lip to the end protruding from the nose, the elastic tube being stretched just sufficiently to loop upwards and forwards the soft palate, and draw it well away from the posterior wall of the pharynx. The looping of the palate on one side is often sufficient, but a better view is obtained by passing a tube through the other nostril, and looping up the soft palate of that side in the same way.

"The posterior nares and naso-pharynx can now be examined with the laryngoscopic mirror with the greatest facility. . . . Care should be taken in passing the tube to let it only just present below the soft palate, as otherwise, if it is pushed farther it may impinge upon the lower pharynx, and is then apt to produce a tickling sensation and desire to vomit." The tube should be withdrawn through the mouth.

Mr. Walsham tells us that American surgeons have employed a similar method, drawing forward the soft palate with tapes; but the plan with the india-rubber tubes has several important advantages.

CHARLES W. CATHCART.

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# REPORT ON OPHTHALMOLOGY.

## RECENT PAPERS.

1. **Georges Martin.**—SUR LA RELATION QUI EXISTE ENTRE UNE VARIÉTÉ DE LA KÉRATITE GRAVE "DITE SCROFULEUSE" ET L'ASTIGMATISME DE LA CORNÉE. (Relation of Certain Cases of Severe Keratitis to Astigmatism.) *Ann. d'Oculist*, July-August, 1883, p. 14.
2. **Warlomont.**—DE L'HEMORRHAGIE CONSECUTIVE À L'EXTRACTION DE LA CATARACTE. (Hæmorrhage following Cataract Extraction.) *Ann. d'Oculist*, July-August, 1883, p. 5.

3. **Nieden, A.**—Ein Fall von einseitiger temporaler Hemianopsie des rechten Auges nach Trepanation des linken Hinterhauptbeines. (Unilateral Hemianopia following Trephining.) *Von Græfe's Archiv.* xxix. 3, p. 143.

4. **Ayres, W. C.**—Der Blutlauf in der Gegend des Gelben Fleckes. (Circulation in the Yellow Spot Region.) *Archiv. für Augenheilkunde,* xiii. 1, p. 29.

5. **Gayet, A.**—D'une Lésion Congenitale de la Rétine: Est-ce une Rétinite Pigmentaire? (A Congenital Retinal Defect: Retinitis pigmentosa?) *Archives d'Ophthal.,* Sept.-Oct. 1883, p. 385.

6. **Dianoux.**—De la Malaxation de l'Œil après la Sclérotomie. (A Form of Massage after Sclerotomy.) *Archives d'Ophthal.,* Sept.-Oct. 1883, p. 385.

1. **Martin on the Relation of Certain Cases of Severe Keratitis to Astigmatism.**—Martin believes that many of the cases of keratitis in young subjects, hitherto classed among scrofulous affections, are really dependent on corneal astigmatism. While he has been studying the question he has seen more than forty cases of keratitis, severe, recurrent, often affecting both eyes, with numerous pustules, infiltration, and superficial ulceration of the cornea. In none of these was there a decidedly scrofulous physiognomy, but in all corneal astigmatism of from 1·5 to 5 diopt. That this was not a result of the inflammation was proved in one case by its measurement before the attack, and rendered probable in some others by its detection in other members of the same family. He supposes the inflammation to be dependent on the irregular action of the ciliary muscle, which takes place in astigmatic eyes in order to correct the corneal error by means of the lens.

2. **Warlomont on Hæmorrhage following Cataract Extraction.**—Warlomont operated last April by downward section with iridectomy on an ordinary senile cataract in a remarkably healthy woman of sixty-three. The operation appeared perfectly successful, but within half-an-hour was followed by such profuse intraocular hæmorrhage that the contents of the globe were expelled *en masse.* He immediately enucleated. Careful microscopic examination showed all the tissues to be normal, more healthy in fact than is usual at the patient's age. The unfortunate result was attributed to the patient's having exerted herself incautiously while returning to bed. Three months later the other lens was extracted, at Warlomont's request, by Lebrun, his corneal section without iridectomy being the method employed. Every precaution was taken to prevent any exertion whatever on the part of the patient. Again the operation seemed successful, but again the same disastrous result followed. The case shows conclusively that extraction should never be attempted on the second eye when one has been lost by this happily rare complication.

3. **A. Nieden on Unilateral Hemianopia following Trephining.**—Nieden adds one to the few recorded cases of limited cortical lesion with hemianopia. A severe blow to the left of the external occipital protuberance was followed by right hemiplegia. This gradually passed away, but returned seven months after the accident with hemianæsthesia, intense headache, most severe at the

seat of injury, and frequent convulsive attacks. The condition of the eyes was carefully examined, and found in all respects normal. Two months after the recurrence trephining was performed immediately above and to the left of the external occipital protuberance. A fissured fracture was found, but no suppuration; and, except unusual adhesion of the dura mater to the skull, no other abnormality. The dura mater, however, was slightly lacerated during the operation. There was almost immediate improvement of the patient's symptoms; but slight hernia cerebri followed, and failure of vision was complained of. On the ninth day after the operation the left eye was found almost normal in all respects; in the right the fundus was normal, but central vision was reduced to $\frac{1}{10}$, and the temporal half of the field, except a small portion close to the fixation-point, was lost, the loss encroaching slightly both above and below on the nasal side. After slight loss of brain-substance the wound healed, and the patient recovered so satisfactorily that about three months after the operation she was able to resume work. Central vision in the right eye rose to $\frac{1}{3}$; but the visual field remained almost unchanged. In the similar cases previously recorded the lesion has been less limited, and there has been hemianopia (right or left) in both eyes. This one is of interest as a farther step in the differentiation and localisation of the functions of the cortex; and as an example of a result almost equally satisfactory from a pathological and a therapeutical point of view: a rare combination.

4. **W. C. Ayres on Circulation in the Yellow Spot Region.**—Ayres describes a simple and elegant method of demonstrating the fine retinal vessels round the macula, and even, he says, the circulation in them. The observer stands with his back to a gas flame, and holds close to the eye a brightly-reflecting curved surface, such as a silver spoon. On looking into the reflection, and moving the head or the surface slightly and rapidly from side to side, the vessels are seen as fine dark lines. The author gives a drawing from his own eye taken by this method, from which he says he has obtained better results, and more easily, than from microscopic examination of injected specimens.

5. **A. Gayet on Congenital Retinal Defect.**—Two cases (brother and sister) are described in which, with the contracted field and hemeralopia found in retinitis pigmentosa, there was observed a hitherto undescribed condition of the fundus. It consisted of small round yellowish-white spots, not exudative, apparently in the posterior part of the retina. In the male patient they were very numerous; in the female only a few were present, with, however, a few of the characteristic pigment deposits of retinitis pigmentosa. The defect of vision in both cases was congenital and stationary. The author refers the cases to the same category as retinitis pigmentosa; and suggests that the change causing it, which he considers inflammatory, may have occurred here at an earlier period of development than usual, before the appearance of any retinal pigment.

6. **Dianoux on the Form of Massage after Sclerotomy.**—Dianoux subjects the eyes on which he performs sclerotomy, at first twice, then once daily, to pressure from the two fore-fingers alternately, as in feeling the tension of the globe. He claims for this practice that it delays firm union of the wound, increases the chance of obtaining a cystoid cicatrix, and therefore of a successful result in combating high tension.

R. A. LUNDIE.

# *REPORT ON DISEASES OF THE THROAT.*

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## *RECENT PAPERS.*

### LARYNGOLOGY AND DISEASES OF THE NASO-PHARYNX.

1. **Stepanow.** — ZUR CASUISTIK DER KEHLKOPF PERICHONDRITIS. (On Laryngeal Perichondritis.) *Monatsschrift für Ohren-Kehlkopf, &c. Krankheiten*, Juli, 1883.
2. **Stepanow.** — EIN FALL VON ZERKRÜMMERUNG DER KEHLKOPF KNORPEL MIT LETALEN EXITUS. (A Case of Multiple Fracture of the Larynx.) *Monatsschrift für Ohren-Kehlkopf, &c., Krankheiten*, Juli, 1883.
3. **Mackenzie, J. S.** — A HITHERTO UNDESCRIBED MALFORMATION OF THE NASO-PHARYNX. *Archives of Laryngology*, July, 1883.
4. **Lefferts.** — NEW FACTS IN LARYNGOLOGY. *Archives of Laryngology*, July, 1883.
5. **Langmaid.** — A COMMON FORM OF VOCAL DISABILITY RESULTING FROM PATHOLOGICAL PROCESSES. *Archives of Laryngology*, July, 1883.
6. **Donaldson.** — THE DESTRUCTION OF NASAL POLYPI BY CHROMIC ACID. *Archives of Laryngology*, July, 1883.
7. **Knight.**—CHOREA LARYNGIS. *Archives of Laryngology*, July, 1883.
8. **Jarvis.** — THE HEALING OF ULCERS IN LARYNGEAL PHTHISIS. *Archives of Laryngology*, July, 1883.
9. **Schech.** — DIE TUBERKULOSE DES KEHLKOPFES UND IHRE BEHANDLUNG. (On Laryngeal Tuberculosis and its Treatment.) *Sammlung klinischer Vorträge*, Volkmann.
10. **Seifert.** — WEITERE BEOBACHTUNGEN UBER DIE WIRKUNG VON CHINOLIN BEI DIPHTHERITIS. (Further Observations on the Action of Chinolin in Diphtheria.) *Berliner klinische Wochenschrift*, 3rd September, 1883.
11. **Murray-Gibbes.** — THE BLUE GUM TREATMENT OF DIPHTHERIA, *Lancet*, 1st September, 1883.
12. **M'Coy.** — OCCLUSION OF THE POSTERIOR NARES AS A RESULT OF NASAL CATARRH. *Medical Press and Circular*, 12th September, 1883.

1. **Stepanow on Laryngeal Perichondritis.**—The author records three very interesting cases of larnygeal perichondritis.

The first case was that of a man who had suffered from dysentery, and three weeks later applied for treatment on account of dysphagia, hoarseness, and dyspnœa.

The most marked appearance, on examination with the laryngoscope, was immobility of the arytenoids and vocal chords, while the left arytenoid lay rather below the right, and turned inwards. Post-mortem examination showed that there was active disease of the thyroid cartilage, and that the posterior portion of the cricoid was entirely replaced by fibrous tissue. The articulation of the right arytenoid was entirely destroyed, while that on the left side could still be made out. Owing to the absence of all previous history of throat affection, and the consequent inprobability of the separation of necrotic cartilage having occurred, Stepanow is inclined to believe that a gradual substitution of connective tissue for cartilage must have occurred.

The next case is that of a man forty years of age, in whom disease of the cricoid cartilage, complicated with fatty degeneration of the heart and lobular pneumonia, produced laryngeal appearances indistinguishable from paralysis of the abductors.

The last case is that of a boy in whom perichondritis of the left arytenoid resulted from primary laryngeal diphtheria, and the patient made a good recovery.

2. **Stepanow on Multiple Fracture of the Larynx.**—Stepanow relates the case of a boy whose laryngeal cartilages were shattered by a kick from a horse. The patient died of pulmonary œdema. The author believes that in these cases immediate tracheotomy affords the best chance of cure. Independently of its obviating the risk of suffocation, he believes that a sudden onset of laryngeal stanosis favours the production of pulmonary œdema.

3. **Mackenzie on Malformation of the Naso-Pharynx.**—Under this title, Dr. Mackenzie, of Baltimore, describes a case in which the nasal septum extended backwards to the posterior wall, and upwards to the vault of the pharynx, completely dividing the naso-pharyngeal space.

4. **Lefferts on New Facts in Laryngology.**—In this paper the histories of two cases of that rare disease, the laryngeal vertigo of Charcot, or laryngeal epilepsy, as it has been called by Gray, are given. In both the patients were young and robust men with incomplete neurotic histories. The symptoms manifested consisted of tickling in the throat, spasmodic cough, and sometimes vertigo only, while other attacks were followed by momentary loss of consciousness. There was no subsequent confusion of ideas, as an interrupted conversation could be immediately continued. In both cases the larynx was free from organic disease, while in one patient there was granular pharyngitis.

5. **Langmaid on Vocal Disability.** — Dr. Langmaid calls attention to sudden loss of voice occurring in singers and actors on attempting to rise above a certain note. The point at which this occurs is, in soprano and tenor voices "at the ninth of the scale in the key of C, or within the limits of a tone above, or below that note. In very high voices it may occur somewhat higher. In contralto and bass voices it occurs at the seventh of the scale." The author points out that this corresponds to the place in the scale at which the change of register occurs in the normal voice. A common error, according to Dr. Langmaid, and one which is apt to lead to this disability, is the habit of substituting the falsetto production at those notes of the scale which have been mentioned.

6. **Donaldson on the Destruction of Nasal Polypi.** — Having first moistened adjacent parts with lead lotion, the author applies a paste of chromic acid to the growth on a glass rod. The former then crumbles, and is easily removed. The acid may also be used to touch what remains of the pedicle after removal.

7. **Knight on Chorea of the Larynx.** — In this paper the author refers to the different varieties of cases which have been recorded as chorea of the larynx. He also describes an interesting and unique case of clonic

spasm of the adductors of the cords, accompanied by similar spasm of the elevators of the palate. Dr. Knight describes as chorea of the larynx and expiratory muscles the condition which has also been called hewers' laryngeal cough.

8. **Jarvis on Laryngeal Phthisis.**—Dr. Jarvis records a case of tubercular ulceration of the vocal cord, which healed under local and constitutional treatment. The former consisted in spraying well an alkaline lotion, followed by the use of a spray containing Magendie's solution of morphia, and partly the insufflation of pure powdered iodoform. As the history and laryngeal appearances described leave no doubt that the case was one of laryngeal phthisis, Dr. Jarvis's communication is of great value, more especially as it agrees with the views expressed by Schech, afterwards to be alluded to.

9. **Schech on Laryngeal Phthisis.**—In this lecture Dr. Schech discusses very fully the subject of laryngeal phthisis; and as the dissertation extends over nineteen closely-printed pages, it will be readily understood that we can only allude to a few of those points which seem of special interest.

Dr. Scheck corroborates the view of Stoerk and others, that small papillary excrescences occurring in the inter-arytenoid space in an apparently healthy individual are often the forerunners of pulmonary phthisis. In one case he observed a small growth in this situation in January, 1877, and the first signs of lung disease could only be detected in July, 1878, and even then there was only slight dulness at the right apex. Hectic symptoms, however, occurred a month later, and the patient died in December, 1879. As to treatment, Schech objects to the use of nitrate of silver, except in cases of œdemic glottiddis, in patients who refuse to permit scarification. He advocates cleansing the ulcers, with subsequent use of antiseptics, and, if necessary, morphia. Of the former he recommends powdered boracic acid highly. Iodoform he has also found effective, although not coming up to prior expectations, and sometimes producing nausea.

10. **Seifert on Chinolin in Diphtheria.**—Seifert publishes some forty cases of diphtheria treated by means of chinolin apparently with the best results.

Before considering the recorded cases either conclusive or convincing, it is necessary to consider the severity of the disease in each case. This can be done by consulting Seifert's cases, which are arranged in a tabular form. It will be observed that in a very large proportion the exudation was confined to the tonsils, there was swelling of the sub-maxillary lymphatics, while we are not informed as to the presence or absence of albuminuria. Can we be sure that all, or even most, of the recorded cases were diphtheritic, and that the symptoms were not due to follicular tonsillitis?

11. **Gibbes on Blue Gum in Diphtheria.**—In this paper Dr. Gibbes records some very satisfactory results derived from the inhalation of steam thrown off from boiling water poured over dried eucalyptus leaves.

12. **M'Coy on Occlusion of Posterior Nares.**—The author describes two cases of post-nasal hypertrophic catarrh in which the redundant tissue was removed by means of Jarvis' snare and the galvano-cautery. Dr. M'Coy believes, with most specialists, that these cases can only be treated satisfactorily by surgical means.

P. M'Bride, M.D.

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## *ORIGINAL ARTICLES.*

### A FURTHER CONTRIBUTION TO THE STRUCTURAL ANATOMY OF THE FEMALE PELVIC FLOOR.

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IN 1880, I published, in a graduation thesis, certain views on the structural anatomy of the female pelvic floor. These views were based on the study of sagittal mesial sections only. This was at first imperative, inasmuch as such special sections give one a very comprehensive view of the structure of the pelvis, and had further been, with few exceptions, the only kind of sections made. One special inducement to the study of such sections was specially that the only two frozen sections of parturient women, by Braune and Chiari, were also sagittal mesial. It is evident, however, that transverse sections must throw light upon the same subject, and therefore, since 1882, I have carried on investigations in regard to these, and in this way have been able to gather additional facts, and clear up some points hitherto obscure.

In order to put the matter as clearly as possible, I will first state the views I have already advanced, state the method of investigation of transverse sections adopted, and bring forward the fresh facts and generalisations.

On sagittal mesial section, it can be seen that the pelvic floor is divided into two segments—sacral and pubic—by the vagina. The pubic consists of bladder and urethra, anterior vaginal wall, retropubic fat, and the peritoneum covering the bladder. (Fig. 1.)

The sacral is made up of the muscles and fascia attached to sacrum and coccyx.

These segments can be seen in Fig. 1, and it can also be noted that round the contracting organs of the pelvic floor is loose tissue—viz., between the anterior wall of the rectum and posterior wall of the vagina, and between the posterior bladder wall and anterior vaginal one. The urethra and anterior vaginal wall are closely blended Figs. 1 and 2. Fig. 1 is a section of a female pelvis a little to the side of the mesial line, where the sites of the loose tissue already mentioned are coloured black. The results I advanced in my thesis were briefly as follows:—

(*a*) The pelvic floor is, unless during certain stages of parturition, and in the genupectoral posture after air is admitted into the vagina, a compact unbroken layer.

(*b*) The vagina and urethra are slits in it, running parallel to the conjugate of the pelvic brim—*i.e.*, at an angle varying from 60° to 100° to the horizon.

(*c*) Ordinary intra-abdominal pressure presses the pubic segment against the oblique sacral one.

(*d*) Extra intra-abdominal pressure dislocates downwards that part of the pelvic floor lying in front of the anterior rectal wall, pressing down the uterus, which is attached to the top of the vaginal wall, causing prolapsus uteri, or more correctly, if more pedantically, sacropubic hernia. Between the anterior rectal and posterior vaginal walls is, therefore, a line of cleavage at which the hernia of prolapsus uteri occurs.

(*e*) During parturition, the pubic segment is drawn up partly above the brim, the sacral segment is driven down and thinned out. The evidence of this is based on Braune's section, on Chiari's one, as well as on the clinical fact that during labour the bladder slightly distended with urine can very often be distinctly palpated above the pubis. It appears greatly distended, but this is really not the case, the fundus vesicæ being high above the pubis, because drawn up.

(*f*) Intra-abdominal pressure rarely forces intestine into the space of loose tissue between the bladder and anterior vaginal wall, this agreeing with the well-known clinical fact that anterior vaginal enterocele is rare.

Further observation has enabled me to confirm and extend these results.

In investigating transverse sections, I used fœtal pelves, and made microscopical sections, chiefly with Rutherford's or William's microtomes, and thus obtained specimens which were both naked-eye and microscopic. In these I got precise information on the lateral relations of the pelvic and sacral segments, and can thus now define more precisely the displaceable and fixed portions of the pelvic floor.

If a transverse microscopical section be made of part of a six months' fœtal pelvis, at the level of the apex of the ischiorectal fossa, including pubis and anterior vaginal wall in the middle line, and stretching laterally a little beyond the level of the pelvic fascia proper, the following points can be noted (Fig. 2):—

In front, the pubic bone, with loose tissue separating it from the urethra (*u*), can be seen. The urethra and anterior vaginal wall are compactly constructed. Running from the pubic bone out and back, is the pelvic fascia proper, with the obturator internus muscle firmly attached to its outside, and the levator ani as firmly to its inside.

The important fact, however, is, that the urethra and vagina are separated from the inner aspect of the levator ani by loose tissue. The "ring" of loose tissue in the pelvic floor can thus be completely stated as follows:—Beginning behind the pubis (retropubic fat) it

Fig. 1.

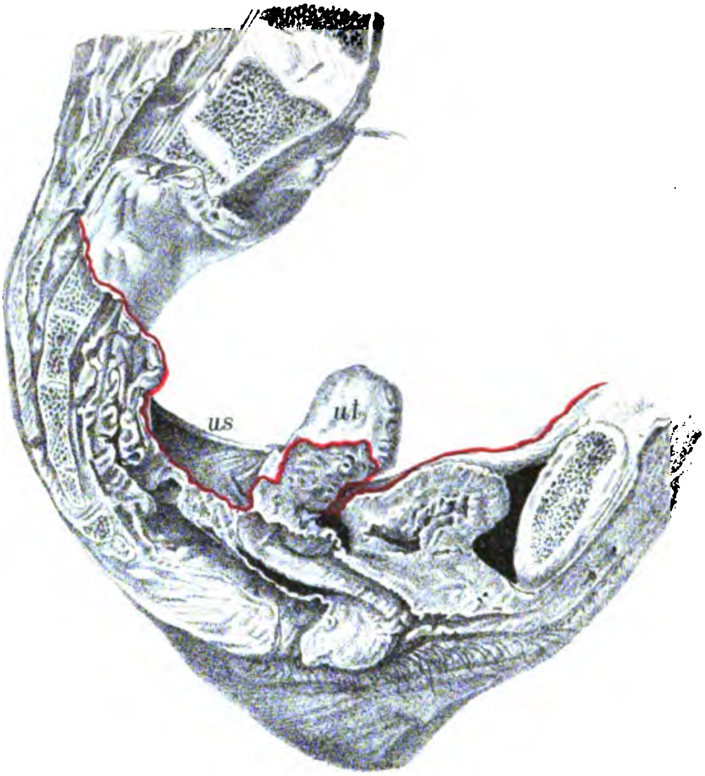
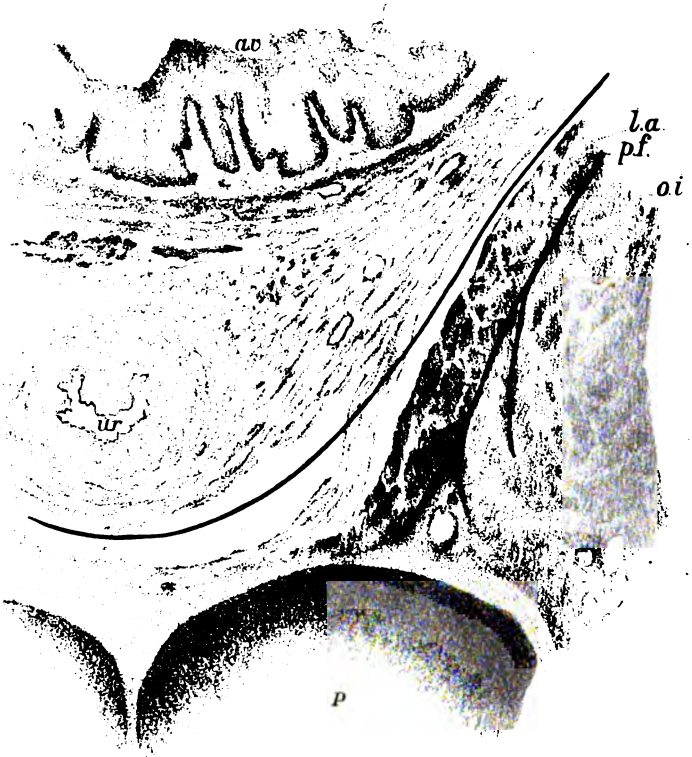


Fig. 2.



## FIG. 1.

Sagittal Section of Female Pelvis a little to one side, and cutting Uterus at its junction with right broad ligament. (Photographed from specimen, reduced to half size and drawn on stone.)

The retropubic fat and recto-vaginal loose tissue are coloured black; the peritoneum, red.

*ut*, Uterus; *us*, left Uterosacral Ligament. The vaginal walls have been slightly separated to show the division into Pubic and Sacral Segments.

## FIG. 2.

Transverse Section of Pelvis of six months Fœtus from Anterior Vaginal Wall to Pubis, drawn from micro-photograph. Two-inch objective.

*ur*, Urethra; *av*, Anterior Vaginal Wall; *la*, Levator Ani; *oi*, Obturator Internus. The black line, *pf*, between these is the Pelvic Fascia cut. The red line indicates the loose tissue line.

Fig. 3.

Transverse Section of Female Pelvis at level of hip joints. The red line has the "entire displaceable portion" of the pelvic floor inside it, and the "entire fixed portion" outside it.

IR, Ischiorectal Fossa; *v*, Vagina; *u*, Urethra. (Modified from Ruedinger.)

Fig. 4.

Vertical Mesial Section of Prolapsus Uteri, showing the "entire displaceable portion" displaced down.

U, Uterus; B, Bladder; A, Anterior Vaginal Wall. (From Schutz).

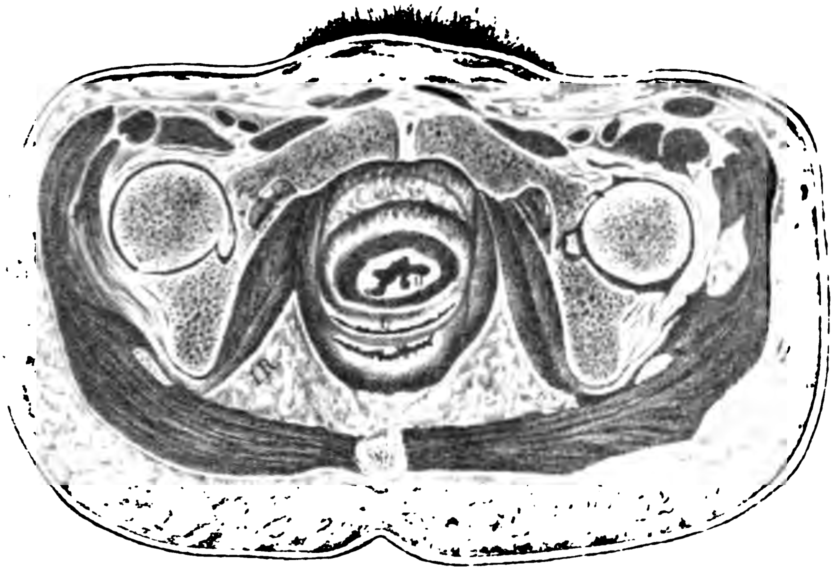


Fig. 3.

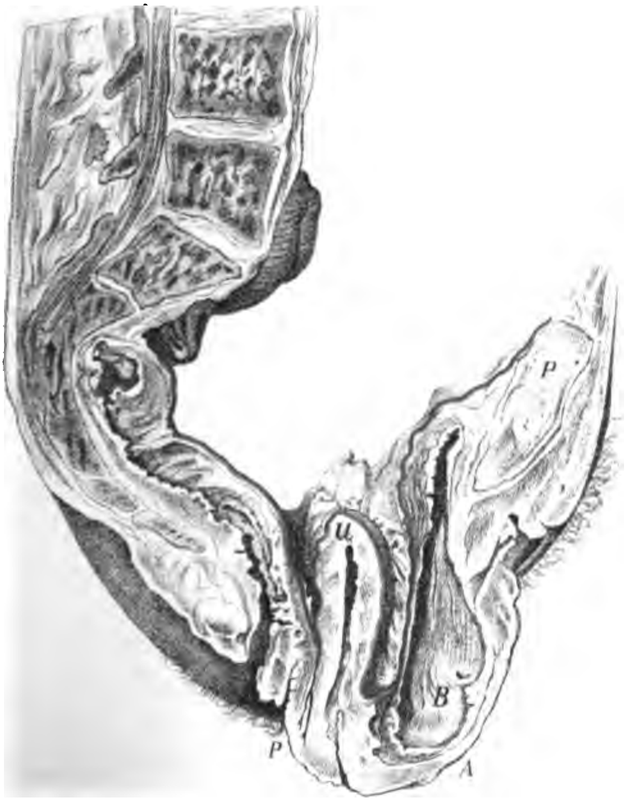


Fig. 4.

Drawn from nature & Printed by W & A K Johnston, Edinburgh

passes on the inner aspect of the levator ani on the right side, between rectum and posterior vaginal wall, on the inner aspect of the left levator ani and back to the retropubic fat again (*vide* Fig. 3.) On Fig. 3 a tranverse section, the red dotted line indicates the boundary between—

1. The "entire displaceable" portion;
2. The "entire fixed portion."

I. The "entire displaceable portion" consists of—

1. Bladder, urethra, and retropubic fat;
2. Vaginal walls;

and is bounded by loose tissue as follows:—

*In front* by retropubic fat (Figs. 1 and 3);
*Behind* by loose tissue between posterior vaginal wall and anterior rectal one (Fig. 1);
On the *right and left sides* by loose tissue on the inner aspect of the levator ani (Fig. 2).

One point to be noted is, that as the uterus is attached to the top of the vaginal walls, it and its annexa will be displaced down along with this displaceable portion of the pelvic floor.

II. *The fixed portion* consists of all behind the anterior rectal wall and all outside the inner aspects of the levatores ani.

These two views as given by sagittal mesial section and transverse section are to be combined as follows:—

| *Transverse Section.* | *Sagittal Mesial Section.* |
|---|---|
| The "entire displaceable portion"— | |
| 1. Bladder and urethra.<br>2. Anterior vaginal wall. | Pubic segment. |
| 3. Posterior vaginal wall. | |
| The "entire fixed portion"— | |
| Tissue attached to sacrum.<br>Bowel in pelvic floor. | Sacral segment. |
| All outside of inner aspect of levator ani. | |

The terminology given is useful in relation to pathological conditions. The division into pubic and sacral segments is necessary for parturition and the genupectoral postures; while in prolapsus uteri the "entire displaceable portion" is forced down and out, the vaginal walls becoming everted during this in such a way that the anterior vaginal walls from below up passes first out at the vaginal entrance and then the posterior one from above down. In a complete prolapsus uteri there remain *in situ*—

1. All behind the anterior rectal wall.
2. All outside the inner aspects of the levatores ani.
3. Some of the retropubic fat.

# ADDRESS DELIVERED AT THE OPENING OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH.

By John Chiene, M.D.,
PROFESSOR OF SURGERY IN THE UNIVERSITY OF EDINBURGH.

(*Continued from page* 109.)

IT is to the career of Dr. Gordon that I wish shortly to refer. You have to thank Dr. Thomson for speaking to me of Gordon; I owe very much to him. He has sent me Gordon's books and papers to show you, and has taken a great deal of trouble to enable me to make this address interesting. Dr. Thomson has communicated with Dr. Tweedie, a pupil of Gordon's. From Dr. Tweedie I have learned much of Gordon. I have also obtained interesting information from Dr. Renton. Daniel Ellis, a fellow-President of Gordon's, and the author of a work entitled an "Inquiry into the Changes produced in Atmospheric Air by the Germination of Seeds, the Vegetation of Plants, and the Respiration of Animals," a book that made some stir in its time—has left us a Life of Gordon, in which we find the following particulars. Allen Thomson says in a letter to me, these "are eminently reliable." Born in Forres, in 1786, the son of John Gordon, wine merchant and banker, a curious combination, he came to Edinburgh in 1799—the year in which Syme was born—and after attending University classes in Humanity and Greek, he was apprenticed to Dr. John Thomson, afterwards Professor of Military Surgery and Pathology, the father of Allen Thomson, to whom I have just referred. In 1801, Dr. Thomson's apprentices seem to have been—we have Dr. Thomson's word for it—very excellent young men. Dr. Thomson says of Gordon, "No one has ever appeared to me to possess in an equal degree the power of executing what was entrusted to his care,—the performance of his duties never seemed to give him any trouble, and nothing could exceed the punctuality with which they were discharged." In this sentence we at once learn the essence of Gordon's future success. Faithful in the performance of his duty, punctual and methodical in all that he did, his work never seemed to give him trouble. No special mention is made of his ability. In Dr. Thomson's eyes it was probably overshadowed by those other good points in his character. We do not all possess ability, but we can all be faithful, punctual, and methodical. With these three characteristics we may obtain success; without them, however much ability we possess, we will do little good. At this time Gordon attended University medical classes, and also several of the extra-mural classes. Dr. Murray taught him chemistry in the extra-mural school. Of Murray it is said that "he was ever ready to advise and instruct his pupils, to listen to their difficulties, to clear up their doubts, and encourage and aid their *private* efforts"—surely this man was a worthy instructor of young Gordon. I take a special pleasure in noticing this famous extra-mural teacher, because to my mind the extra-mural School is one of the great causes of the continued success of the Edinburgh School of Medicine. The nursery in a house is the most important room in that house,—the extra-mural School is the nursery of the University. I once said that the extra-mural School was an excellent tonic to the professors. I still hold to that opinion. I spoke then as one of the administrators of the drug, I now speak as one who feels the benefit of that administration.

In 1803, Mr. Gordon joined this Society, of which his biographer speaks as "an institution highly favourable to the development of talent, and contributing in no ordinary degree to that inquiring disposition and independent mode of thinking on medical subjects which have ever been leading characteristics of the Edinburgh School." In Gordon's time this was said of the Royal Medical Society; in my own time it could be said with equal truth, and I doubt not that it still holds true. The students sat as jurors on the doctrines of their teachers. Gordon read four Dissertations before this Society. I show you the original papers. Gordon did everything he had to do well, reminding one of what is said of an ancient king, "Every work that he began he did it with all his heart, and prospered." In January, 1805, he read a paper upon "Injuries of the Thorax." In March, 1805, "What is the Process of Nature in the Healing of Wounds?" In 1806, "What is the Present State of our Knowledge in regard to the Progress and Treatment of Inflammatory Diseases of the Testes?" and in the same session, "On Scirrhus and Pulpy Testis, with some Anomalous Affections of that Organ." No one can say that Gordon was an idle man. I have read these papers, and in all of them there is ample evidence that he did his work thoroughly and conscientiously. He evidently read everything he could find on the subject, both in his own tongue and in foreign languages—French, German, Dutch, and Italian. He quotes freely, and criticises intelligently, and he always gives his references, a matter to which we should always pay most careful attention. He falls foul of Mr. John Bell, for whose powers of poetic imagination and description Gordon seemed to have very little sympathy. It is said of him that he never uttered a jest when lecturing. His criticisms are withal courteous, and there is no possibility of misunderstanding them. I might say a great deal more of these Dissertations, but I have not the time. I can only wish that I had been told of them before I wrote my Dissertation. I ask those of you whose Dissertation is still in embryonic form to read Mr. Gordon's paper on "The Healing of Wounds," and to take it as your model.

Gordon became a Licentiate of the Royal College of Surgeons of Edinburgh, and a Doctor of Medicine of the University, in 1805. The subject of his thesis was "De Vulnere naturæ sanando." Gordon's first intention was to join the service of the East Indian Company, but Dr. Thomson, observing his talents and industry, recommended him to stay in Edinburgh, and to become a teacher of anatomy and physiology. He readily embraced this idea; and to prepare himself, he went to London, and after having visited all the great hospitals, and made particular inquiry as to their respective capabilities for the study of anatomy, illustrating thereby the characteristic caution of his nation, he ultimately fixed on the Theatre in Great Windmill Street, then under the care of Mr. Wilson. He gives us his reasons for making this choice when he says: "These dissecting rooms seem so well supplied with subjects, and are apparently so comfortable, and the pupils are so much to my mind, that I have resolved to become one of the party." He joined the dissecting rooms as one would do a family circle. Here he made acquaintance with Mr. (afterwards Sir Benjamin) Brodie, whose "Life and Works" you should all read, and his friendship with Brodie lasted during the whole of his lifetime. He studied Comparative Anatomy under Dr. Macartney, who afterwards migrated to Dublin, where he wrote a valuable work on the "Immediate Healing of Wounds." He attended the wards of Blizard. I show you his note-book of the cases he there saw. Returning to Edinburgh in the summer of 1806, in November of that year he was elected one of the Annual Presidents of this Society. In 1807, he became an inmate in Dr. (now Professor) Thomson's family, with whom he continued to reside for several years. During his twenty-first year, in the summer of 1807, by Professor Thomson's advice, he gave his first demonstration in Osteology, to a few friends. Their approval encouraged him to give a public demonstration in the same year, and he commenced regular work as a lecturer in the following winter. At first he had but few pupils, a very common beginning for successful extra-mural teachers; this wisely, however, did not prevent his continuing, and after a time he had a good class, although he had to compete with Barclay, who was at that time a well-established and well-loved teacher in the Edinburgh School. I show you the bills of Gordon's lectures, his class-cards, and his roll-book, from which we learn that he had among his pupils, Alison, Bransby Cooper, and Syme. During the ten years he was lecturer, he enrolled 1536 students, giving during that period twenty-one separate courses of instruction. To reach Gordon's lecture-room, his students had to pass by Barclay's lecture-room door.

At first Gordon taught anatomy and physiology as a combined course, including in his anatomical lectures, a good deal of surgical instruction, as should still, in my opinion, be the custom. In 1808, he wrote his probationary essay for the Fellowship of the College of Surgeons, on "Dislocation of the Thigh-Bone." This essay he dedicated to his friend Allan Burns, Lecturer on Anatomy and Surgery in Glasgow. If time permits, I may say something to you of Burns, who seems to have been a close friend of Gordon's.

In this essay Gordon evidently appreciated the value of what he terms "a few skilful manipulations, instead of the most powerful machinery," as the true method of reducing these dislocations. He produced each dislocation artificially upon the cadaver, then a new thing, describing particularly the method which he adopted. He then carefully dissected the parts, and described the appearances noticed. For ten years Gordon taught in the extra-mural School, and we have only to look at the syllabus of his Lectures on Physiology, and the first and second parts of his "System of Anatomy" to see that he was a most thoughtful, intelligent, hard-working man, who evidently had from the first made up his mind to throw his whole energies into teaching. It was not until after his marriage, in 1812, that he began to look to practice as a means of adding to his income. Before his death he was making £1200 a-year by practice. Gordon also wrote a book upon the "Anatomy of the Brain," to which he seems to have paid very particular attention.

In this work he speaks highly of the claims of Reil, in opposition to those of Gall and Spurzheim, as the author of the best description of the arrangement of the fibres of the brain.

The last anatomical work on which Gordon was engaged was a series of plates illustrating the anatomy of the human skeleton. They are very beautiful. As a teacher, you will find a full description of his work in Ellis's book. In 1814, he was appointed Junior Surgeon in the Royal Infirmary, a post equivalent to that of the present Assistant Surgeons. He gained this position in consequence of his reputation as a teacher of anatomy. During the four years that he held this office, Gordon appears to have given special attention to morbid anatomy, an excellent training for the cultivated physician and surgeon. Just at the time when he had overcome the primary difficulties of his position, he was carried off by an attack of typhus fever, after an illness of fourteen days' duration.

The news of his unexpected death cast a gloom over professional circles in Edinburgh. I have told you of its effect on this Society. A similar meeting was held in the Royal Physical Society. The Royal College of Surgeons passed a resolution expressing their deep regret. Brodie, Travers, and Lawrence wrote from London to Dr. Thomson, when they heard of his death.

He is buried in Greyfriars Churchyard. There was some difficulty in finding his resting-place. No wonder, when I tell you that there is no inscription on the tomb. In the words of Ecclesiastes: "There is no remembrance of the wise more than of the fool."

This should be remedied, with the assent of his relations.

JOHN GORDON,
ANATOMIST AND PHYSIOLOGIST,
1786-1818.

would be, to my mind, a suitable inscription; and I would suggest that this Society should consider the advisability of having the omission remedied. Gordon's character seems to have been one which rendered him a universal favourite. Able, straightforward, and painstaking, he apparently had the faculty of stating his views without offence. A man who has no enemies must either be a man with no ideas, or must possess this power in a marked degree. Let us all try and avoid offence. "A brother offended is harder to be won than a strong city." Of Gordon it was said, "There never was a man from whom his friends were so sure to hear the truth, and to hear it, even when unpleasant, with the least possible pain, and without the smallest admixture of offence or provocation."

Dr. Renton, the father of the profession in Edinburgh, informs me that he was Gordon's apprentice for four years—a form of fellowship which is now a thing of the past. I am not altogether sure that it should be so. I believe that an apprentice who is faithful to his master can learn very much which he can never learn in lecture-rooms. The communion between master and apprentice may be one of the pleasantest—may bind pupil and teacher together in a way which can never afterwards be forgotten. This was the bond between James Syme and John Brown—a bond of which Dr. Brown was so proud, and of which he speaks so feelingly. Read his paper entitled "James Syme."

Dr. Renton is now in his 90th year. He tells me that he travelled on the Continent after his graduation in 1814, a year before the battle of Waterloo, when Buonaparte was a prisoner in Elba. Dr. Renton was much pleased to learn that I purposed speaking to you of his old master, whom he still remembers with a fond affection. Dr. Renton tells me Gordon was a fluent and polished lecturer, and a clear demonstrator. He evidently made friends of his apprentices, and Dr. Renton still remembers him for his kindly social nature, and for the power and ability he had of singing a good Scotch song, a habit which should, I think, be kept up by all musical Scotsmen. It is one way of keeping up the individuality of a nation, and preventing that baneful tendency to centralisation which is one of the evil tendencies of this day. Don't imagine that I do not desire you to learn from others. Let us take all the good we can, from whatever source it comes. The individuality of a nation is just the sum total of the individuality of its units: interfere with its units, and sooner or later the nation becomes a name; retain their individuality, and the nation is secure. The power of song is a most powerful factor in preserving the traditions of a people. These traditions are their heirlooms, to be treasured as carefully as one treasures anything that is of this world. By all means keep up the songs of Old Scotland. If true of a nation and of the units of that nation, surely also the traditions of a School of Medicine are worthy of remembrance. I have a good excuse to-night when I ask you to go back with me seventy years in the history of the Edinburgh School.

Surely we learn something from Gordon's life, while science lost much by his early death, in his thirty-second year. There can be no doubt that he did much to strengthen the Edinburgh School of Medicine. Any of you who may think of becoming in the future teachers of physiology, will do well to study the syllabus of his lectures,—you will regret that he did not live to write, as was his purpose, a text-book on that science. It is also to be regretted that he did not complete his system of anatomy. His life work was an unfinished one. An unfinished life has its use. An old man dies, and in one sense his work is done. A young man who has begun his work, dying in harness, hands it on to those he leaves behind, hands it down to be completed and perfected, leaving behind him as a legacy that something, which, by its very incompleteness, encourages further endeavour. His life is, so to speak, continued by those who knew him, to be in their turn handed on to those who come after. He tills the ground for them to sow; he plants the seed for them to gather.

Gordon joined this Society as a young man; from what I have already said, you can estimate the power he possessed over the members of the Society, and I do not think we are wrong when we assume that while Gordon did much for the Society, the Society in its turn did much for Gordon. In it he learnt in all probability the power of expressing himself clearly and distinctly. In it he learnt habits of business and application. In it he had opportunities of studying the works of his predecessors, and all his papers show that he was a great reader. He apparently read, and digested what he read. He read "not to contradict and confute, not to believe and take for granted, not to find talk and discourse, but to weigh and consider." Bacon says, "Reading maketh a full man, conference a ready man, and writing an exact man." In this Society you have opportunities for all these, you have an excellent library, you have full opportunities given for conference with your neighbours, and you are called upon to write a Dissertation, which you are sure will be criticised by your fellow-students, not in a carping or ungenerous spirit, but with a view to the discovery of the truth, which, as Locke has it, is "all simple, all pure, and will bear no admixture with anything else." If you take full advantage of the facilities afforded you here, you will, I feel sure, gain facility in expression, and habits of business. You will learn to know yourself, to know your power, and to know your weakness; to think humbly of the one, and to try and get rid of the other.

You will also learn to see good in your neighbour, a faculty most difficult to attain; but when, in an argument or dispute, you have schooled yourself to look with a kindly eye on your neighbour's errors, as you perhaps blindly, perhaps wrongly call them, when you have learned to estimate his opinions from his stand-point, to look at them through his spectacles, then, and only then, will you be in a position to come to a clear understanding of the true merits of the problem under discussion.

In this Society you have weekly opportunities of practising this virtue; when you have found it, you have attained to one of the most fertile causes of human happiness.

Would that we could see ourselves as others see us, is true; would that we could see others as they see themselves, is equally true.

*(To be continued).*

# *MEETING OF SOCIETY.*

## THE OPENING MEETING OF THE OBSTETRICAL SOCIETY,

WEDNESDAY, 4TH NOVEMBER, 1883.

DEAR SIR,—The opening meeting of the Obstetrical Society was held on Wednesday, the 14th inst., and was largely attended. The following is the list of office-bearers for the ensuing year:—President, Dr. Connel, of Peebles; Vice-Presidents, Dr. Angus Macdonald and Dr. C. E. Underhill; Librarian, Dr. Peter Young; Secretaries, Dr. Freeland Barbour and Dr. Milne Murray; Treasurer, Dr. W. Craig; Members of Council, Drs. Simpson, Croom, Playfair, Rattray, J. Young, Gordon, D. Wilson, P. A. Young. The Obstetrical has, we observe, followed the example of the Medico-Chirurgical Society in having an annual election of four members of Council.

The retiring President—Professor Simpson—gave a valedictory address, in which he reviewed the work done by the Society during the past two years; among the removals by death of the members of the Society, special reference was made to Depaul. Judged by the volume of transactions, the Obstetrical Society turns out a larger amount of original work than the Medico-Chirurgical, though the latter is more numerously attended. The Pathological Committee, which is the latest development in the Society's work, gave in an interesting report. Naked-eye and microscopic preparations of carcinoma uteri and sarcoma of the pelvic cellular tissue were shown. A short paper by Professor Stadfeldt, of Copenhagen, was read, describing a case in which ten fibroid tumours were expelled at intervals from the uterus of a patient, not through the cervical canal, but through the vaginal mucous membrane of the fornix. The case is unique, and seems to have been one in which a series of fibroid tumours in succession caused sloughing of the vaginal mucous membrane, and became thus spontaneously enucleated.

DAVID SMART.

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## *REVIEWS.*

### **Des Méthodes Antiseptiques en Obstetrique.** PAR LE DR. PAUL BAR. Paris: Alexandre Coccoz. 1883.

THE literature on antiseptics, which is already by no means scanty, is distinctly enriched by this volume. Apart altogether from many other advantages, the introduction of antiseptics as routine practice in Maternity Hospitals has given the obstetrician the means of very materially diminishing maternal death by the prevention of puerperal septicæmia. The reports of the Hospitals in Copenhagen, Germany, Switzerland, especially Basle, Paris, London, and Edinburgh, conclusively show the diminished death-rate from so-called puerperal fever since the adoption of antiseptic precautions.

It is fitting, therefore, that the whole subject of the employment of antiseptics in obstetric practice should be inquired into thoroughly. This Dr. Bar has done in an interesting and exhaustive volume of 280 pages, comprising eleven chapters and an appendix.

The first chapter is very properly devoted to a well digested account of the sources and channels of infection to the puerperal woman. The author labours at length to show the intimate analogy that exists between surgical and obstetrical septicæmia, pointing out in addition the general conditions of the puerpera which render her peculiarly obnoxious to septic infection.

In chapter second, the author defines what he means by the antiseptic method,—viz., "La méthode thérapeutique qui permettra de détruire les germes, d'empêcher leur production, leur introduction dans l'organisme des malades, de lutter contre leur développement, constituera la méthode antiseptique." Dr. Bar lays great stress upon the need for the accoucheur being thoroughly convinced of the truth of the theory before he attempts to carry it into practice. There can be no doubt as to the propriety of this advice, for unless the system is adopted in its entirety, to the minutest details, the results will be unsatisfactory. Dr. Bar proceeds to give a long list of all the substances which act, or have been said to act, as antiseptics. He, however, very wisely selects only a few for discussion in detail—for example, bichloride of mercury, nitrate of silver, iodine, iodoform, carbolic acid, chloride of zinc, permanganate of potash. The author gives a most interesting account of each, and describes fully the indications for their employment respectively.

The chapter in which the author discourses of the antiseptic method in obstetrics, judged by its results, is thorough and convincing. He attempts a historical account of the various epidemics of puerperal fever, which have from time to time almost decimated the maternity hospitals of the continent of Europe and of Great Britain, but the report is too short to be strictly historical, and too long and tedious as substantiating the importance of antiseptics. Dr. Bar enters upon the question long ago worked out by Simpson, Kennedy, and others here,—viz., as to the increased mortality of hospital *versus* home practice. Perhaps one of the most striking points he mentions is with regard to the epidemic of puerperal fever which visited the Maternity Hospital in Paris, in 1852, and of which Tarnier gives an account, where the deaths in hospital were one in six, while in private practice, say, in the twelfth arrondissement, there was only one death in 382 confinements. The author refers to the work of Bischoff, Fritsch, Schroeder, and Breisky in Germany, as well as to Tarnier, Pinard, and Lucas Championnière in Paris. Without referring to the results in detail, those obtained by Tarnier are most striking. Since the year 1876 there has existed at the Paris Maternité a special pavilion called the Pavilion Tarnier. This pavilion is conducted under strict antiseptic rules, with the following mortality:—

| | | |
|---|---|---|
| 1876, . . | 88 accouchments, | 1 death. |
| 1877, . . | 204 „ | 2 „ |
| 1878, . . | 234 „ | 2 „ |
| 1879, . . | 182 „ | 1 „ |
| 1880, . . | 155 „ | 0 „ |
| 1881, . . | 235 „ | 0 „ |
| 1882, . . | 185 „ | 0 „ |
| 1883, . . | 147 „ | 0 „ |

It thus appears that since the year 1880 there has not been a single death in the pavilion of Tarnier, even though the deliveries extended to considerably over 700. It is scarcely possible to hope for a better result than that. Still it must be kept in view that in the pavilion Tarnier the women were in separate rooms, and every possible care was taken with regard to cleanliness.

The Maternity at Prague shows even more strikingly the advantage of the method. This hospital, as is well known, is a large teaching institution for both medical students and midwives, under the charge of Breisky and Weber. Since 1878 the antiseptic method has been carried out with the greatest rigour. A glance at the table will show that the mortality has fallen from 11 per cent. in 1869, and 7 per cent. in 1873, down to *nil* in 1882.

To take one other example, given by Dr. Bar—viz., Copenhagen. In this hospital antiseptics have been carried out since 1870, by Stadfeldt, the result being that the mortality has fallen almost to *nil*. Dr. Bar gives two most interesting tables from Stadfeldt comparing the mortality of the town of Copenhagen with that of the lying-in hospital. Comparing the one with the other, the fact is obvious that, so long as the antiseptic method was *not* employed in the hospital the mortality was five to seven times greater there than in the town; but exactly in proportion as it has been carefully carried out, in precisely the same ratio has the mortality of the hospital fallen, until in 1881 the mortality of hospital and private practice have become very nearly the same. The author goes further, and shows that since the adoption of antiseptics even in the outdoor practice of the midwives, the mortality has very markedly diminished. For example, in Paris, Pinard, in the out-door practice of the midwives, had only 3 deaths in over 1000 labours, and Budin 3 in 1021.

Dr. Bar devotes his fourth chapter to a description of the methods for disinfecting—

*1st.* The delivery and lying-in room ;
*2nd.* the various appliances in use in the room ;
*3rd.* the medical attendant and nurse.

These antiseptic precautions are so well known, and so much employed, both in hospital and private practice, that it is unnecessary to enter into them in detail here. The whole chapter is excellent, and will repay perusal.

In describing the antiseptics of natural and artificial labour, which the author does in the succeeding chapters, he recommends vaginal injections, either of corrosive sublimate or carbolic acid, during labour in all cases. This is surely needless in ordinary labour if examinations are, as they ought to be, made but seldom, only to establish diagnosis or note progress, and if the fingers are well disinfected. In operative cases the antiseptic vaginal douche is of much value previous to operation. He very properly discards the spray as useless during delivery ; but recommends, with Tarnier, that the posterior commissure should be well smeared with carbolic oil while it is being distended by the head. The author goes into tedious details in describing the precautions to be taken in plugging the vagina, in the use of the forceps, and in other operations. Which is the best method to deliver the placenta antiseptically? By expression, after Credé ; by the old method of traction ; or by leaving it alone, after Freund? The author very properly says that the best method is that which does not require the introduction of the hand, and therefore recommends expression. The frequency with which pieces of membrane are retained in utero when this method is employed must be kept in view as detracting from its value over the other methods. In the puerperal condition, thorough washing with antiseptic solution, antiseptic diapers, and vaginal injection—*e.g.* 1 in 100 carbolic acid, and 1 in 2000 corrosive sublimate—constitute the antiseptic precaution advised by Dr. Bar. He recommends, in rupture of the perinæum, immediate repair only when the wound is even and simple ; in cases where it is irregular and contused, wait. Why? Is it not better, from an antiseptic point of view, to say the least, to give every perinæal tear the benefit of immediate treatment. If it fail, it makes the subsequent perinæorraphy no more difficult. The dangers of the catheter, and the great necessity for antiseptic care in its use, are fully explained. The remaining chapters are devoted to short accounts of the employment of antiseptics in uterine rupture and in Cæsarian section. A short appendix on ophthalmia neonatorum, and its prevention by the use of nitrate of silver, as shown by Credé, bring to a conclusion a work at once of great interest to the obstetric practitioner and creditable to the author.

A perusal of this work makes it very clear that whatever notions may be entertained with regard to the question of antiseptics generally, and whatever may be the position taken by surgeons toward the system, in those hospitals where it has been adopted, septicæmia has been practically stamped out ; that clinical teaching can go on with but little risk, and that the mortality of hospital and private practice come to be nearly the same.

J. Halliday Croom.

## **A Treatise on the Diseases of the Nervous System.** By JAMES ROSS, M.D. 2nd Edition. J. & A. Churchill. London, 1883.

DR. ROSS has fairly earned the eminent success to which his book has attained. Only those who have worked in some part of the wide field of nervous diseases can estimate the labour required in the production of such a work as this. The literature is so immense and so scattered, the opportunities of studying examples of many diseases are so rare, and the care required for expiscating clinical material, are sufficient to deter even bold men from undertaking the production of a systematic treatise. Yet here we have it, and in its second edition. It would be unreasonable to expect a really original work on the diseases of the nervous system from an author who is still only assistant physician to his hospital, but it is simple justice to say that while much of the book is reproduction from other writers there is evidence all through of the careful use of the material at the author's command, and that, not unfrequently, one may detect the true ring of description of his own observations. The vivacity which marks such passages contrasts with the comparative tameness of the information abstracted from the writings of others. Very few men among English-speaking physicians can now be in as good a position as Dr. Ross for unravelling the intricacies of obscure nervous cases, or for recognising undescribed forms of disease which may in future come under his observation.

The work is divided into two books, the first being devoted to the general, the second to the special pathology of the nervous system. In a little more than three hundred pages he discusses the structure and functions of the nervous system, the general etiology and symptomatology, the affections of sensory, motor, and trophic mechanisms, the general morbid anatomy and physiology, diagnosis, prognosis, and treatment, and although the account is brief, it seems fitted to give to a student a good general idea of the subject. He is a somewhat devoted follower of Herbert Spencer, and is largely guided by evolutionary views, but from his own observations, and still more from the use of the works of Landois, Leyden, Erb, Charcot, Gowers, Ranvier, and others, he has brought together a very satisfactory *resumé* of the whole subject.

In the special part of the work he discusses the diseases of the peripheral nerves, the sympathetic system, the spinal cord and medulla oblongata, the encephalon and the encephalo-spinal system.

On comparing the present with the first edition of the work, we find that there is little of importance added in the first book. In the second, one of the first changes we observe is the more adequate account of what he calls progressive multiple neuritis. He makes no reference to Dr. Pierson's excellent clinical lecture on the subject which was published in March of the present year, but refers to a number of cases which were described in a paper on the subject in *The Edinburgh Medical Journal* for April, 1881. A comparison of statements and dates inclines one to conclude that Dr. Ross was more indebted to that paper for his knowledge of this subject than his readers might at first sight suppose.

We could have wished that he had done more justice to the subject of facial neuralgia, particularly the epileptiform variety.

The diseases of the cranial nerves are otherwise well described, and he has added a good deal regarding the spasmodic affections of the larynx.

In his general description of the spinal segment, he has borrowed Dr. Byrom Bramwell's diagram, and has somewhat modified the description in the previous edition. He has transferred his account of Landry's acute ascending paralysis from the group of "mixed disease of the spinal cord" to the poliomyelopathies, and he has enriched his account of that disease by the narrative of a case which he had the opportunity of studying along with Mr. Whitehead. The case appears to have been of the nature of the acute ascending paralysis, but terminated in recovery. We are glad to see that tetany is transferred from the place it formerly held to a more appropriate position between tetanus and hydrophobia. The account also given of it is extended and improved.

We hope that in a future edition some of the articles may be extended and enriched, such, for example, as alcoholic nervous diseases, which are dismissed in about four pages, while other maladies certainly not more important, such as hydrophobia, receive far more lengthened discussion. The most extensive addition which has been made to the practical part of the work is the description of cerebral neurasthenia which is defined as "a functional disease in which numerous and well-marked, although variable symptoms supervene simultaneously and successively, under conditions in which the nervous system is subjected to severe strain from overwork or other cause." He follows pretty closely the descriptions of Dr. Beard, and of Weir Mitchell and Dr. Playfair, and strongly insists upon the treatment or systematic management of these cases, quoting largely from Dr. Playfair's well-known essay on the subject. There can be no doubt of the not unfrequent occurrence in both sexes of such groups of symptoms, and Dr. Ross's account of them will make them even better known to the profession than they have hitherto been. We regard this work as a valuable contribution to medical literature. No competent judge could doubt that this second edition is a *good* book, and if Dr. Ross continues to work as he has hitherto done, we venture to anticipate that it may yet take rank as a *great* book.

T. GRAINGER STEWART.

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# *REPORT ON OBSTETRICS.*

## EXTIRPATION OF THE UTERUS THROUGH THE VAGINA.

1. **Sänger.**—ZUR VAGINALEN TOTALEXSTIRPATION DES CARCINOMATÖSEN UTERUS NEBST BERICHT ÜBER ZWEI VON DER OPERATION GENESENE FÄLLE. (Total Extirpation of the Carcinomatous Uterus through the Vagina.) *Archiv. f. Gynäkologie*, Band xxi. Heft. 1.
2. **Schatz.**—KLINISCHE BEITRÄGE ZUR EXSTIRPATION DES GANZEN UTERUS DURCH DIE VAGINA. (Extirpation of the Uterus through the Vagina.) *Archiv. f. Gynäkologie*, Band xxi. Heft. 3.
3. **Rivet.**—ON FUNIC HÆMORRHAGE DURING LABOUR. *Annales de Tocologie*, Sept. 1883.

1. **Sänger on Total Extirpation of the Carcinomatous Uterus through the Vagina.**—Sänger, in a very thorough and exhaustive paper, gives the results of this operation up to date. He groups the cases of total extirpation under three heads: (1) for carcinoma uteri, 133 cases with 95 recoveries and 38 deaths; (2) for prolapsus uteri, 6 cases, with 4 recoveries and 2 deaths; (3) for fibroma uteri, 4 cases, of which all recovered. This gives a total of 143 operations, with a *mortality of* 28 *per cent.* He lays stress on the importance of every case being reported, that complete statistics as to the mortality may be collected. With regard to the hope of radical cure, 6 cases are cited as being still without a recurrence at 1½ years after the operation, and 7 at several months

after it. On the other hand, 7 cases are given in which it returned in a few months, and even weeks.

In Sänger's first case, an introvaginal fistula developed along with the recurrence of carcinoma in the wound; the intestine had probably become adherent to this part after the operation, and been involved in the carcinomatous ulceration; the patient died ten months after the operation. His second case was still without recurrence, five months after the extirpation of uterus and ovaries. After a concise description of the variations in procedure of the different operations, he describes his own, in which he follows chiefly Schroeder: the anterior fornix is incised, the cellular tissue between the cervix and bladder separated, the posterior fornix cut into, the parametric and uterine arteries ligatured by three overlapping ligatures, the uterus retroverted, the ovaries drawn down, the broad ligaments ligatured—the ligature taking in the tissue from the parametric ligatures to the infundibulo-pelvic ligament, the uterus removed, the pouch of Douglas sponged out, the pedicles stitched in the corners of the vaginal wound, the peritoneum stitched to vaginal mucous membrane before and behind. The advantages of retroverting the uterus before introducing the broad ligament sutures are succinctly stated. The closing of the wound in the vagina by stitching peritoneum to peritoneum is repudiated as being difficult to carry out: the stitching of the peritoneum to the vaginal mucous membrane has the advantage of disposing the peritoneal surfaces so that they can easily unite, allowing fluid in the pouch of Douglas to drain away, covering in the parametric tissue, and thus lessening the risk of phlegmon. Iodoform gauze is strongly recommended as an after-dressing; it absorbs the discharge, and is a thorough antiseptic.

Sänger believes that vaginal extirpation will gradually replace amputation of the cervix for carcinoma, as in malignant disease removal of the whole organ affected is always a more satisfactory operation than the removal of the diseased part.

2. **Schatz on Extirpation of the Uterus through the Vagina.**—Schatz has removed the uterus per vaginum for carcinoma in ten cases. Of these seven recovered. Of the three fatal cases, only one was directly the result of the operation, the other two being ascribed to iodoform poisoning and to anæmia. He describes in detail his method of operating, of which the two peculiarities are *the sutures* and *the after-treatment.*

After cutting through the posterior fornix by a mesial vertical incision, which is prolonged downwards as far as the bottom of the pouch of Douglas, a *series of interrupted sutures* is carried through the vaginal mucous membrane. Several needles are placed on one continuous thread, and carried from the peritoneal towards the mucous membrane aspect; each loop of thread thus drawn through is divided, and the one end tied to its corresponding one. This chain suture is carried on to the base of the broad ligament, and the uterus is now cut free posteriorly and laterally as far as the suture extends. The uterus is now retroverted, and the broad ligaments ligatured in the usual manner. The cervix is then dissected off the bladder, and the vesical peritoneum stitched to the mucous membrane of the anterior vaginal wall. Schatz does not consider it advisable to close the wound in the roof of the vagina by stitching up the peritoneum. The length of the mesentery does not admit of the intestines prolapsing. Further, the bladder falls back towards the pouch of Douglas, and fills up the wound in the vagina—as was demonstrated by the post-mortem of the two fatal cases. Schatz points out that the bladder was cup-shaped in these cases, the superior half lying in the concave inferior one—the shape which

D. B. Hart has described as the one assumed in diastole. He recommends that the bladder be kept moderately distended after the operation to allow it to act more effectually as a plug, and prevent the intestines from prolapsing; we think that moderate distension would have just an opposite effect, as the pubic segment will adapt itself to the sacral one most completely when the bladder is flaccid. The effects of tying in a ureter by mistake, he does not consider serious. This occurred in two cases, in both of which the ureter became again permeable; in one case this was demonstrated by post-mortem, in the other by the passing off of the symptoms. This is ascribed to the fact that the coats are not crushed by the ligature (as in the case of an artery), and that no clot forms to act as a plug when the ligature slackens.

In *the after-treatment*, the patient is laid on a couch with a movable back, so that the shoulders may be raised above the pelvis—from 45° to 90°. Schatz rightly draws attention to the fact that the pouch of Douglas cannot be drained effectively when the trunk is horizontal; the shoulders must be raised to an angle of 45° at least. Further, he does not consider a drainage-tube necessary; the median incision in the posterior vaginal wall forms a trough, and the sutures of the pedicle laid along this are a sufficient drain. The couch is covered with an air-cushion provided with a funnel-shaped hole, which allows the vaginal discharges to drain away, and antiseptic injections to be used without moving the patient.

The latter portion of the paper is taken up with the results and indications for the operation. The cases in which it is indicated are ranged in six groups: (1) In non-malignant affections, it is very rarely justifiable, though Schatz performed it successfully in a case of cystic polypi (see also Sänger's paper). (2) Carcinoma of the body of the uterus offers the most satisfactory cases for operation. Three of Schatz's cases (successful) were of this nature. He places the mortality from the operation at 10 per cent. in this group (?), and thinks the period of health enjoyed before recurrence justifies the operation. (3) Carcinoma of both cervix and body, and (4) carcinoma of the mucous membrane of the cervix are also favourable for operation, as the connective tissue is not early involved. When carcinoma arises (5) in the substance of the cervix, or (6) in its vaginal mucous membrane covering, it is usually beyond the possibility of operative interference, as the connective tissue is early involved.

A. H. F. Barbour.

**3. Rivet on Funic Hæmorrhage during Labour.**—In this paper, M. Gustave Rivet records an interesting and very rare case of spontaneous rupture of the funic vessels from a velamentous insertion of the cord accompanied by hæmorrhage.

After referring to the literature of the subject, which is by no means extensive, he proceeds to narrate the following case:—

A primipara, *æt.* nineteen, previously in good health, and, up till the time of her pregnancy, menstruating regularly, was admitted under Budin into "La Charité." She was apparently seven months pregnant. Her pregnancy had presented no peculiar features. She was delivered naturally of a male child shortly after admission. Immediately after, Rivet recognised a second bag of membranes, beyond which a second head was felt presenting. The pains became powerful, and the bag of membranes appeared externally at the vulva, which was greatly distended. While Rivet was watching, the membrane ruptured, and, at the same time, there was a distinct jet of hæmorrhage. Shortly thereafter the second child, a male, was born, pale and exsanguine. After considerable efforts respiration was established, and went on regularly for some time. There were two placentæ. In that of the first child the cord was marginal; in that of the second, the insertion was velamentous. The three vessels of the cord split up and traversed the membranes for a considerable distance before entering the substance of the placenta. When the membranes ruptured, all the three vessels were torn. The mother made a good recovery, but both children died.

Of course, velamentous insertion of the cord is comparatively frequent in twin births, but the points of interest in the case were:—1st. The rupture of the vessels took place low down at the vulva; 2nd. That all the three funic vessels were torn; and 3rd. That the source of the hæmorrhage, which compromised the life of the second child, was *seen* by Rivet at the time of its occurrence.

J. HALLIDAY CROOM.

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# *REPORT ON DISEASES OF CHILDREN.*

1. **Cassel, Dr. Jacob von.**—ZUR THERAPIE DER TUSSIS CONVULSIVA. MIT BESONDERN BERÜCKSICHTIGUNG DER GEGEN DIE KRANKHEIT ANGEWENDETEN SPECIFICA. (On the Therapeutics of Whooping Cough.)
2. **Credé.**—ZUR VERHÜTUNG DER AUGENENTZÜNDUNG NEUGEBORENER (DRITTER ARTIKEL). (The Prophylaxis of Ophthalmia Neonatorum.) *Archiv. f. Gynäkologie*, Bd. xxi. Hft. 2.

1. **Cassel on the Therapeutics of Whooping Cough.**—The author gives an exhaustive account of the numerous remedies which of late years have been tried in this disease, their very number being an indication of the difficulty of coping with it by therapeutic means. A large proportion of the cases were treated in hospital, chiefly in the polikliniks of Drs. Joseph Meyer and Baginsky, thereby insuring careful clinical observation and skilled supervision, which is not attainable in private practice. The results are interesting, and on the whole satisfactory, especially as indicating the kind of drug which is likely to be found useful in certain classes of cases, and in different stages of the disease. He concludes by admitting that for this disease as yet there is no specific. On the whole, he thinks, the narcotic class of remedies will be found most useful, especially belladonna, and more particularly when it is combined with chloral hydrate. As to bromides, he considers them of less value, but yet sometimes useful. Carbolic inhalations are undoubtedly of service, and salicylates apparently seem in many cases to lessen the duration of the attacks.

The remedies he divides into three classes:—1. NARCOTICS; 2. ANTISEPTICS; 3. EMPIRICAL REMEDIES.

1. NARCOTICS.—Of these, the first noted is *Potassic Bromide*. He admits the power of the salt in allaying nervous excitability and irritation in this disease, but considers that although it exercises a certain beneficial influence for a time, when the system gets accustomed to its use it ceases to have any effect, the attacks becoming as bad as before. He also finds that it is liable to produce great depressions, and on the whole considers that the expectations formed of the probable effect of this remedy have not been realised. He goes on to note

more particularly the observations of Lublinski, who found in 23 per cent. of cases treated that the attacks were somewhat diminished in severity but not in duration.

Heubner, who gave similar doses to Lublinski, attained very similar results, the duration of the disease being in no case shortened, the author giving an unfavourable opinion as to the usefulness of the drug.

Baginsky admininistered the remedy in smaller doses than either of the authors just mentioned, and with no better results.

Körner, who used the remedy chiefly by inhalation, speaks more favourably of its effects.

*Belladonna* is the next remedy of the narcotic class noted. Much more favourable results were obtained with this drug. Its action on the peripheral and respiratory nerves was well marked, especially when combined with remedies of the antiseptic and astringent class.[1] Meyer-Huni[2] found atropin used by insufflation most successful.

The observations of J. W. Allan[3] are noted, also those of Dr. Jules Muscarel[4] and Dr. W. M'All,[5] in addition to those of Heubner and Lublinski. All authors agree as to the efficacy of the remedy, not only in diminishing the severity of the paroxysm, but the duration of the illness as well. It should be administered in full doses, and its effects carefully watched, dryness and irritation of the throat and dilatation of the pupils being indications that its administration should be discontinued.

*Opium.*—Our author dismisses this remedy in a few words, considering that on account of its poisonous nature in children, the propriety of its use is doubtful. He admits that its sedative and narcotic effects are undoubted in diminishing the cough, but he is of opinion it has no influence in curing or cutting short the disease.

*Chloral hydrate* is next noted, and the results of its administration are found to be satisfactory in diminishing the severity of the attacks, as well as apparently cutting short the disease. Dr. Lorey of Frankfurt[6] thinks favourably of its effects. Heubner also found it useful, especially administered per rectum. Dr. Marcell Hartwig[7] does not speak in such high terms of the results obtained in his practice.

*Chloral hydrate and belladonna extract* in combination seem to have found much favour in Germany, although little used in this country. The results of treatment are considered more satisfactory than with either of the remedies used separately.

*Chloral butylate.*—The use of this remedy has been advocated by Dunlop,[8] also by Roberts,[9] and it would appear to exercise a wonderful effect in arresting the progress of the attack, cases being noted where a cure was effected within two weeks.

*Propylamine* has been tried by Hryntschak,[10] who thinks it has an influence on the laryngeal nerves and, possibly, on the fungus associated with this disease. He found the attacks much diminished in severity, but relapses were apt to occur which, however, yielded to an increased dose.

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[1] *Berlin. klin. Wochenschrift*, 1879, No. 16.

[2] Weitere Beiträge zur Pathologie und Therapie des Keuchhustens, *Zeitschrift f. klin. Med.*, Heft. 3, 1880.

[3] *Glasgow Med. Jour.*, February, 1880.

[4] *Jahrb. f. Kinderheilkunde*, Bd. viii. 1875, § 219.

[5] Traitment de la Coqueluche, *Gazette des Hôpitaux*, No. 28, 1882.

[6] *Jahrbuch f. Kinderheilkunde*, 1872.

[7] *Deutsche Zeitschrift f. prakt. Med.*, 1877, No. 29.

[8] *Lancet*, 28th June, 1877.

[9] *Œsterreich Jahrbuch f. Pädiatrik*, 1877, p. 237.

[10] *Archiv. f. Kinderheilkunde*, Bd. xi. 1877, § 336.

*Ether* was used by Lubelski[1] by dispersion, but with no satisfactory results.

*Amyl nitrite* has been tried by Sawarowsky,[2] a few drops diluted with a drachm of chloroform. He considers the remedy one to be tried with caution only by the physician himself.

*The constant current* is spoken of by Rossbach[3] as a remedy promising the most satisfactory results, and well worthy of further trial. The current was always applied to the cervical spine.

2. ANTISEPTICA.—*Quinine-sulphate* has been extensively tried by Steffen and Binz,[4] as well as by Breidenhof, Heubner, Hagenbach, and others, with the result that it appears to exercise a powerful antiseptic influence, especially on the secretions of the bronchial mucous membrane. It was seldom given in children under the age of six years. Drowsiness was generally produced before a successful result was attained. Full doses were given according to age. The administration by enema was frequently resorted to instead of the oral method. Lublinski gave the drug in much larger doses, apparently with more successful results.

*Carbolic Acid.*—The results of treatment by this drug are referred to at some length. Letzerich, Burchardt,[5] Uffelmann,[6] Birch-Hirschfeld,[7] are all quoted as having given it an extended trial. It was chiefly used by the various methods of inhalation, either in the form of spray or vaporisation with steam. Curschmann has invented a respirator from the use of which he has obtained good results. Seeman always employs a tent bed, saturating woollen cloths and also the bed-clothes with a 3 per cent. solution. Other products of the destructive distillation of coal-tar were tried with similar results. All the authors agree as to the benefit derived from carbolic inhalation of various kinds. Carbolic poisoning was not proved to result from this method of treatment.

*Turpentine* inhalation, a few drops on a pocket-handkerchief or sprinkled on the child's pillow, is spoken of as being useful by Albrecht.[8]

*Petroleum* applied externally to the chest has been used by Lesser[9] and Hildebrandt,[10] the latter employing it also in vapour and by sprinkling over the bed-clothes. The results were not, on the whole, satisfactory.

*Salicylic acid and sodium salicylate*, by the method of spray and inhalation were found also serviceable in lessening the severity and duration of the attacks.

*Carbolate of soda* and *corrosive sublimate*, the former by Pernot[11] and Dujardin-Beaumetz, and the latter by Koch, have been severally recommended.

3. EMPIRICAL REMEDIES.—Of these Extractum castaneæ vescæ is spoken of with most favour by Dr. Thomas D. Davis, of Philadelphia,[12] and also by Korvatsch.[13] The juice of the chesnut is chiefly used in America. The leaves

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[1] *Gazette hebdomadaire u. Gazette des hôpitaux*, 1878, 26.

[2] *Jahrb. f. Kinderheilkunde*, Bd. xi. 1877, § 336.

[3] *Berlin klin. Wochenschrift*, 1880, No. 18.

[4] *Jahrb. f. Kinderheilkunde*, Bd. i. § 241, w. f. 1868.

[5] *Jahrb. f. Kinderheilkunde*, Bd. viii. 1875, § 450.

[6] *Deutsche Zeitschrift f. prakt. Med.*, 1876, No. 39.

[7] *Jahrb. f. Kinderheilkunde*, xii. Phl. ii. 1878.

[8] *Schweizerische Correspondenzblätter.*

[9] *Jahrb. f. Kinderheilkunde*, vi. § 436, 1873.

[10] *Deutsche Med. Wochenschrift*, 1878, No. 2.

[11] *Bulletin Gen. de Therap.*, xv. 2, 1878.

[12] *American Journal of Pharmacy*, 1871.

[13] *Centralzeitung f. Kinderheilkunde.*

of chesnuts and peaches are collected in September, and from these an extract, made and administered with sugar or glycerine.

*Oxalate of cerium, chloride of pilocarpin, picrinate of ammonia* and *tincture of myrrh* have all been tried, but apparently with little indication of usefulness.

JAMES CARMICHAEL.

2. **Credé on Prophylaxis of Ophthalmia Neonatorum.**—In this paper, Credé sums up his experience in the treatment of this affection. During the ten years 1870-1880, the number of children affected with ophthalmia at the Leipzig Maternity was about 12 to 15 per cent. (during two years it was only 6 to 7 per cent.). During the last four years, in which his special treatment has been carried out, it has fallen to ·25 per cent. in one year, and 0 per cent. in the other three. With regard to its etiology, his conclusions are: (1) that it is caused by a specific virus, which is identical with that of gonorrhoea; (2) that the poison, which is found chiefly in patients affected with granular vaginitis, finds its way into the conjunctiva principally during the second stage; (3) that the normal vaginal secretion does not cause ophthalmia; (4) that the existence of granular vaginitis was only proved in a small percentage of his cases, because several were admitted to the Maternity already in labour; (5) that a prolonged second stage (of more than an hour), as well as an early rupture of the membranes (three hours before the birth of the child) and the birth of large children, favour infection. The period of incubation is usually three, rarely five days. Antiseptic vaginal injections and washing of the child's eyes had been tried, but found insufficient to prevent ophthalmia. This led Credé to experiment with a view to destroying the germ, and he has found that a *two per cent. solution of nitrate of silver* effects this. The eyes are first washed, and then a single drop of the solution is let fall on the conjunctiva; no further attention is required. In some cases, specially premature children, some hyperæmia of the conjunctiva follows; in the majority there is no reaction. As 33 per cent. of the children received as blind into the asylums in Germany and Austria owe their condition to this disease, we are not surprised to learn that Credé's method is being enforced by the Government Board of Health.

A. H. F. BARBOUR.

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## OBITUARY OF DR. J. MARION SIMS.

THIRTY years ago a pamphlet came across the Atlantic which wrought a revolution in vaginal surgery. We remember the spell it threw over the mind of Sir James Simpson, who recognised in the author of "Silver Sutures in Surgery" a kindred spirit, careful in observation, quick in apprehension, fertile in resource, fearless in effort, and enthusiastic in achievement. The pamphlet told of triumph in a field that had been the very despair of surgery. Jobert, Wutzer, and one or two other surgeons had had an occasional success in the closure of a small vesico-vaginal fistula; but in Britain the subjects of it were doomed to hopeless isolation. Lecturers and writers seemed to think that the less that was said of it the better. And here was an American practitioner, in the slave State of Alabama, showing that for some years he could count on a certain cure even in the desperate cases.

Dr. Marion Sims laid a good deal of stress on the importance of the silver sutures with which he brought together the edges of the wound. The metallic sutures have not proved to be a constant necessity for the success of his operation, but in many cases their use gives the surest guarantee for union, and their employment in other operations has been attended with beneficent results, and because of his introduction of them into practice, surgery can never let his name fade from her annals.

The great improvement, however, that he effected in the operation, and that gives him a chief place among the founders of gynecology, was his discovery of the proper means for securing full exposure of the vaginal cavity. It was a real discovery. His heart was set on curing the poor slave women who so frequently were the victims of urinary fistula. One in particular had baffled him, because of the difficulty of getting access to the opening in the vaginal wall. In 1845, as he tells in his "Clinical Notes on Uterine Surgery," he had to treat a lady who was suffering from retroversion of the uterus. To reduce it he had placed her in the knee-elbow position, and first with one finger, and then with two in the vagina, tried to replace it Whilst manipulating in different directions, he suddenly lost touch of the uterus and vaginal walls. The fingers were embraced at the vaginal orifice, but as they were turned round within the cavity it seemed to have become expanded, and he felt as if he could barely touch the sides of the pelvis. The lady declared herself relieved. He did not understand what had happened, but as she was heavy, he allowed her to lie down on her side, and noticed that as she lay, or rather fell, down, an escape of air took place from the vagina. He recognised that in the peculiar posture in which the patient had been placed, the tendency of the vaginal roof had been to gravitate towards the abdomen, and as he had opened up the vaginal orifice, the air had rushed in to distend its cavity. His mind was constantly working then at his fistula cases, and we have heard him own that no sooner had he had time to reflect on what he had observed, than he went to the kitchen where the black cook whose case had baffled him was at work, and with the bent handle of one of her own spoons for a proto-speculum proved the possibility of exposing the rebellious fistula. From that time dates his triumphs over that dire distress, and the introduction of the most important implement in the armamentarium of the gynecologist.

Sims's speculum is essentially a spatula. Now, spatulæ had been used for vaginal exploration by others. But the form that he gave it has, with slight modifications, been found the most serviceable; and he has the undivided merit of having shown how its full benefit is obtained by proper posturing of the patient. Using it at first in the cure of fistulæ, he soon learned and taught the world to use it in preference to any other form of speculum, and by its use not only widened the scope of our diagnostic powers, but the sphere of our operative interference.

The speculum that bears his name is his greatest invention; and his operation for the cure of fistulæ his most beneficent achievement. But there were other instruments of much value, though of minor importance, which he was the first to introduce, or on which he made improvements. And there were other operations with which his name is honourably associated—plastic operations on the vaginal walls, division of the cervix uteri, removal of the cancerous cervix, reposition and retention of the dislocated uterus, removal of diseased or normal ovaries, cholecystotomy, and other operations on the pelvic and abdominal viscera, in regard to all of which he has made valuable contributions in papers and books which bear the stamp of an honest mind, and are charged with a generous appreciation of the work of his fellow-labourers.

Having practised for some years in Montgomery, Alabama, he removed in 1853 to New York, where he devoted himself almost exclusively to diseases of women. There he founded the famous Hospital for Women, in which he and his followers have not only been able to relieve crowds of suffering females, but have made observations on the diagnosis and treatment of their diseases which have made the wide world their debtors. In 1862, the strained relations which arose between him and some of his neighbours on account of his Southern sympathies during the Civil War, led him to seek for a time a sphere of practice in Europe. His great reputation secured him abundant employment in the capitals of France and England. It was during his residence in London that he published his largest work, containing the results of his treatment of many forms of uterine disease.

For the last ten years, however, New York had become again his headquarters; and, although almost every year found him on this side the Atlantic, so that his face and figure have become very familiar at meetings of Congresses and Associations here, it was in New York that he died, on the 13th of this month.

Let us try to introduce our readers to the man himself. We find him on one of his visits to Edinburgh, four years ago, in the company of some fourth-year students and young graduates of medicine whom he has been asked to meet at dinner. The party has gone back to the drawing-room. A little man, far on in the sixties, with ample forehead and full eyebrows, from under which the eyes sometimes shoot keen or kindly glances, and sometimes have a far-off, meditative look, leans his hands upon the back of a chair, and speaks somewhat as follows:—

"Gentlemen, I don't know that I have anything very important to address to you. I had no idea of making a speech, and the suggestion that I should say something to-night is due to our hostess. I am very glad, however, to meet you young men, and will be pleased if I can say anything to help you in the life you are beginning, or will soon begin. I am an old practitioner now, having practised medicine for about fifty years. I remember well how much I used to be encouraged by a friendly word from a man older in the profession than myself, and would like to be able to repay the benefit to you.

"I believe I couldn't do better than just tell you my own experiences when I tried to make my first start in practice. I had graduated at Jefferson Medical College, after two years of theoretical study, as was common with us at that time. You'll be surprised when I tell you that I had only had theoretical training; but in reality I had received no clinical instruction, had been called to walk no hospital wards, and had never seen a person die. I had learned something of anatomy and enough of surgery to be able to tie the innominate artery or cut down on any nerve in the body; but as for medicine, I had never been told how to distinguish a colic from a labour pain. The best openings for practice at that time were in the West; but I was very well satisfied with my acquirements, and thought I would do quite well if I started in my own native town. It was but a little place, and I settled in a house at the one end of it. I remember well the sign-plate I got put up on the door; it was made of shining white metal, and of striking dimensions, for it was between two and three feet long, with Dr. J. Marion Sims on it in huge letters; and as I walked up the street I liked to see it glancing in the sunset. It didn't seem, however, to make much impression on the community. I had waited there for a fortnight, wondering sometimes when the practice was to begin. One morning I was reading the papers at my window when the leading man in the town came along. He was a master tailor to trade, but he was the big man in the place—a sort of Mayor. When he came to the window, he stopped and called up, 'Well Marion' (no one thought of calling me Doctor, for they had all known me there as a boy), 'Well Marion,' said he, 'have you got ever a call yet?' 'No,' said I, 'not yet.' 'Will you step along and see my baby? It 's got summer diarrhœa, and seems rather badly.'

"I can't tell you how big I felt. I never expected to begin my practice in the Mayor's family. I had imagined that I should have to begin with working among the free niggers, who were often enough ill, but who could never pay a doctor, and here my first call came from the greatest man we had—the man, in fact, who *ran* the village. I felt as if I had grown to twice my size, thought of ordering a new suit of clothes immediately, and fancied that my fortune was made. I went along, and found the baby, which was in the midst of its teething, very ill with diarrhœa. I did not remember having heard anything about this summer diarrhœa at College, but of course I looked wise, felt the baby's pulse, examined its dejections, and cut its gums in two places. Then they asked me, 'What was I going to give the child?' That was a puzzler. I said, 'Oh, I'll make up some medicine at home. It 'll take some time to get ready, and you can send Jinny along for it in an hour.' This Jinny was a sharp little nigger girl, one of those little mischiefs who can run an errand ever so fast when they are not wanted to. And I tell you I went home as quick as ever I could, to get plenty of time at my books. Luckily for me we had no druggist, or apothecary, or pharmacist to send prescriptions to, for I don't think I could have written one to save my life. Well, I got home to my books. I hadn't a large library, just a few books on a shelf. There was Dewees' Midwifery, Eberlé's Practice of Medicine, and two or three others. I took down Eberlé, and looked him up on the Summer Diarrhœa of Children. There was about a dozen pages, with one prescription, and sometimes two on every page, for Eberlé was great in prescriptions, and sometimes gave a whole string of them. I read seven or eight pages, but did not seem to know any better what to do with the Mayor's baby.

"However, it was necessary to do something, so I took his first prescription —I don't remember what it was now,—and by the time Jinny came I had made up some powders. These I gave her, along with a note to her mistress with instructions to give one to the infant every two hours in a little syrup. I went along in the evening again to see the child, and was told the powders hadn't done it any good. I went home, and made up the next prescription. This was the only patient I had, and I kept going three or four times a-day to see it, and sometimes stayed all night. But it was always the same thing—'The medicine is not doing it any good.' I turned a page of Eberlé on that infant every day; but it steadily grew worse. Still, I never dreamt but that it would get well; I couldn't imagine it possible that my first patient could die. I was doing my best for the child and watching it very closely, along with the old black woman who nursed it. I fancy old nurses and young doctors don't get on very well any time. The old nurses think that the young doctors don't know their business too well, and the young doctors feel that the nurses look down on them. But, to make a long story short, I was standing at one side of the bed and the old nurse at the other, when she looked across to me and said, 'Doctor, don't you think that child 's agoin' to die?' I felt quite indignant, and said, 'No, I don't.' I looked again at the child, felt its pulse, and insisted that it would come all right. She said nothing. In a little the breathing became slower, there was a kind of convulsive movement, and the infant became alarmingly still. I whipped it out from under the bed-clothes, blew into its lungs, jerked it from side to side, and tried hard the ready methods for resuscitation. The old nurse came round to my side of the bed, and I think I feel her hand on my shoulder yet as she said, 'Doctor, it 's no use a-blowin' and a-shakin' at that child. That child 's dead.' I never was so astounded in my life. I went to the funeral, and went home more disheartened than I can express at having lost my very first patient.

"I hadn't got over my disappointment when, about a fortnight after, the foreman of the establishment came to me and said: 'Marion, have you got any new calls since the Mayor's baby died?' 'No,' said I. 'I wish you would come and see what you can do for my baby. It 's got summer diarrhœa.'

"I did not feel so proud as I did of my first call, but went, and found the child very ill indeed. Still I did not know what to do, and was obliged to go back to Eberlé, and make up his prescriptions as before. Only, this time I began with the last prescription, and turned the pages backward. The child was getting worse and worse when, to my great relief, Dr. Jones, the village doctor, who had been away on a holiday, came home. He was a most excellent doctor, and I went and told him how the mayor's baby had died, and asked him to come with me to see the foreman's child. He kindly came, and like a wise man said very little when we were in the house. But when we got outside, and walked around to the back of the house, he said: 'I think this baby's going to die too.' 'No,' said I, 'it 's impossible that two babies should die.' But die it did.

"I have never in all my life felt so cast down as I did just then. If I had had a thousand dollars, I would have given up medicine for ever, and gone in for some business. But I was a poor man, and my father had spent all he could spare in educating me. When the second child died, I went home to my little office, took down the big plate with Dr. J. Marion Sims on it, carried it into the back garden, and cast it into a well that was there, a hundred feet deep. If the well is still there, then that plate is at the bottom of it to this day.

"I managed to go back to Philadelphia, and worked hard at my profession. I would have you remember that nothing but hard work will enable a man to get on. It 's not always the man of most talent and genius, but the hardest worker, that gets on best.

"The story I have told you is true, every word of it; and if I hadn't met with that double disaster at the outset, I might never to this day have known how ignorant I was, and how needful it is to work hard to learn how to practise."

A. R. Simpson.

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# THE EDINBURGH CLINICAL AND PATHOLOGICAL JOURNAL.

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## *ORIGINAL ARTICLES.*

### SOME LESSONS IN CONNECTION WITH THE PRACTICE OF SURGERY.

BY THOMAS ANNANDALE,

SENIOR SURGEON TO THE ROYAL INFIRMARY, AND REGIUS PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH.

(*Continued from page* 20.)

### SURGICAL DRESSING OF WOUNDS.

IT is difficult to realise to the full extent all that the antiseptic treatment has done in connection with the improvement and further development of surgical practice, unless one has had some experience of the non-antiseptic treatment of wounds. As an apprentice in a large provincial hospital, I was taught and practised the method of dressing wounds by means of strips of adhesive plaster and large "pledgets" of lint or linen, thickly smeared with resin or other ointments. Occasionally when such dressing was removed, primary union to a greater or less extent, had taken place; but more frequently the result was inflammation and suppuration, which were attended with all the risks local and general of such a condition. Frequent cases of septicæmia and pyæmia were the result; and at intervals, there were outbreaks of hospital gangrene, which, when once established, attacked almost every wound or sore in the ward. On coming to Edinburgh as a student, I soon learned the improved and simpler methods of Liston and Syme, in which water and clean dry dressings were employed, with more favourable results. The careful application of pads of dry lint or linen so as to exercise steady pressure and keep the surfaces of the wound in contact, and at the same time allow blood, germs, or pus to escape, was especially successful, as carried out by Mr. Syme; but even with these simpler methods, cases of blood-poisoning were not uncommon, owing to local putrefactive changes taking place. As one of Mr. Lister's first pupils, and afterwards as his colleague, I had the privilege of closely observing the gradual origin and perfecting of his antiseptic treatment; and although there are some differences of opinion in regard to the details of antiseptic surgery, there should be no difference of opinion in awarding to Mr. Lister the credit of establishing antiseptic surgery, which is now almost universally practised in some form or other.

Personally, I would express my strong opinion as to the value of the antiseptic treatment of wounds in preventing local and general irritation and in reducing the risks of blood-poisoning to a minimum. I do not say that antiseptics will in all cases certainly prevent blood-poisoning, for I believe that causes acting from within may lead to putrefactive or other changes in connection with a wound, but such cases are very exceptional. I know that cases in which the application of antiseptics fails to prevent blood-poisoning are frequently attributed, and in the majority of instances with justice, to a want of proper care in their use; but I certainly have met with a few cases of failure which could not be accounted for in this way.

*Principles of Surgical Dressings.*—In connection with this subject it is well to accept as a fact, that the putrefactive and injurious changes which take place in wounds are the result of the contact of germs or organisms which exist free in the air, or which may be communicated to the wound by the touch of external objects. No doubt some special condition of the wound or tissues influences the behaviour of these germs and no doubt, also, there are organisms which exist in the tissues themselves; but in the present state of our knowledge it seems to me best to consider that all wounds require some form of antiseptic dressing or application in order to prevent harmful results in connection with them. All who have had experience of the non-antiseptic treatment of wounds, know that wounds will heal in a perfect manner without antiseptic precautions or dressings, but they also must have realised the fact that there is no certainty that such good results always take place. On the other hand, with proper antiseptic precautions, the injurious results are reduced, as I have already expressed it, to a minimum. In advocating the antiseptic treatment of wounds, I would note the importance of strict attention to rest, avoidance of all causes likely to produce local or general irritation, and careful attention to diet and health, in addition to the employment of any special application or dressing. The late Mr. Callender, and my colleague, the late Professor Spence, illustrated in their practices how much the results of surgical treatment may be successfully assisted by careful attention to these details; and I refer to them because I have sometimes met with a tendency to trust everything to, and to expect everything from, the use of antiseptic dressings alone, with little or no heed being paid to other details.

The principles of the surgical and antiseptic treatment of wounds may be stated as follows:—

(1.) To take all precautions to insure thorough cleanliness, and an antiseptic condition of the whole surface of the wound and surrounding parts, and of everything which comes in contact with them during any exposure of the wound.

(2.) To apply some antiseptic form of dressing which will enclose the wound and exercise equal pressure over its deep portions, and allow of the free discharge of fluids from its cavity or surfaces. In the selection of any special dressing, the chief point to be attended to is, that it should retain its antiseptic properties for some time, and so be able to resist putrefactive changes in connection with the wound and its secretions, without a too frequent renewal or change of its application being required. Other elements are, that it should be as little irritating as possible, locally, or by absorption, and that it should be of such a nature as to admit of accurate and successful application to all regions of the body.

(3.) To secure free drainage by the insertion of tubes or other means where a cavity exists in the wound, or where there is a probability that fluids may accumulate and separate its surfaces.

(4.) To use the proper means to carry out the principle of rest and general treatment already referred to.

*(To be continued.)*

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## ADDRESS DELIVERED AT THE OPENING OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH.

By John Chiene, M.D.,

PROFESSOR OF SURGERY IN THE UNIVERSITY OF EDINBURGH.

(*Continued from page* 137.)

At the same time that Gordon was teacher extra-murally in Edinburgh, Allan Burns was an extra-mural teacher in Glasgow. He taught anatomy and surgery from 1806 to 1813. Burns was born in 1771, five years after Gordon, dying at Gordon's age in 1813. He began as Demonstrator of Anatomy in his brother, John Burns's rooms, at the early age of nineteen. After graduation, he went to St. Petersburg, but only stayed six months, returning, contrary to all precedent to the custom of Scotsmen, to his own country. Allan was, for this alone, a remarkable man. His arrival was an opportune one, because John was caught removing bodies from a Glasgow cemetery, and he compromised matters with the magistrates by retiring from his position as a lecturer on anatomy; he was the first who taught anatomy in Glasgow, and his younger brother Allan took his place. John Burns promised, in fact, to be a good boy in the future, not only to keep out of mischief, but to avoid even the appearance of evil, and he consequently took to midwifery, and ultimately became Professor of Surgery in the Glasgow University. Allan was a most successful teacher. I have the authority of Professor Cowan, lately Professor of Materia-Medica in Glasgow, for saying that he was so successful that he could not accommodate all who applied for admission to his School. He taught in a building at the north-west corner of Virginia Street, the beginning of the College Street School of Medicine. During the latter part of his career he struggled with constant ill-health. He found time to do much good work, and wrote one of the earliest treaties on "The Most Frequent and Important Diseases of the Heart, presenting a Connected View of the Causes and Consequences of the Various Diseases to which this Most Important Organ is Liable." He has also left us a work on "The Surgical Anatomy of the Head and Neck." A most valuable treatise, welding together, in a way that every teacher of surgery should aim at, anatomical detail, with surgical practice. Any one reading this book must regret that he did not live to complete the other regions, as was his intention. In this book he makes the wise remark about John Hunter. Of him he says that "he was the introducer of several new methods of operating, but he was the inventor of few instruments." This is an age of new instruments and new remedies.

Allan was also the first to describe the falciform edge of the fascia lata of the thigh, in a paper published in the *Edinburgh Medical Journal.* The Burnses were sons of the Rev. John Burns, D.D., for sixty-nine years minister of the Barony Church in Glasgow (afterwards Norman Macleod's church); he died the father or oldest minister in the Church of Scotland. His son, John Burns, seems to have been an universal genius. Anatomy, Midwifery, and Surgery were not enough; he must write an anonymous work on the Principles of Christianity—you have perhaps heard of his work on the Principles of Midwifery. His father, when he read the work on Christian Principles, is reported to have said, "Ah, John, I wish you could have written a book like that." I may note in passing that a brother of John and Allan still lives, George Burns, the founder of the Cunard Steam Shipping Company. He has a son who is now chairman of the Company. These Burnses were in truth a brainful family.

Burns's life, then, like Gordon's, was an incomplete one. We learn from his life as from Gordon's. In both of these men we have examples of earnestness which we would do well to ponder over. Neither was born with a silver spoon; both by downright hard work reached the position which they did. In both we have examples of men who made for themselves a reputation, which should not be allowed to die. In both we learn the lesson that the best way to learn is to teach. Allan Burns would return from St. Petersburg, he must teach. You cannot all be teachers in a School of Medicine. You will all, however, have opportunities of teaching some lesson to your neighbour, see that you seize that opportunity; if you do so you are acting wisely, if you let it slip by you are burying the talent which has been committed to you.

I have endeavoured imperfectly to tell you of the life-work of these two men. I have no doubt missed much that might have been useful to you and to me. I might have made more of the subject, but surely I have said enough to show you that if a man is in earnest in what he does, he will be remembered by those who come after him.

Let us try and follow them. Let us keep their memory before us as an example. Let us remember that the Scottish Schools have memories, have traditions to be treasured. Let us see that we do not allow it to be said of us that we have forgotten these memories, these traditions. Surely we can take some comfort in our daily life from the fact that if we imitate those who have gone before in their goodnesses, avoiding their mistakes, we shall do well. Let us press on, and endeavour to keep bright the lustre of our School. Let us try and keep ever before us its individuality as a sacred trust handed down to us by our predecessors.

A School of Medicine is of all things a thing of slow growth. Stone by stone, little by little, it gradually assumes importance. After a time the danger is that it loses its power of development, that it becomes effete, begins to decay, goes down the hill. We hear no evidence that the Scotch Schools are showing signs of decay. We will hold our own as long as we do honest work. Let the seniors see to it that they encourage their juniors, as Thomson encouraged Gordon, as Thomson encouraged Simpson. If John Thomson lived for nothing else he lives in our memories as a man who brought forward Gordon; as a man who saw the power in Young Simpson, a baker's son from Bathgate. You know what James Young Simpson did for this School and for the science and practice of Midwifery and Surgery. As for the Edinburgh School, I am of opinion that next to a powerful extra-mural School, composed of men working as Gordon worked (as many are working to-day), next to a close communion between teacher and taught, the Royal Medical Society is one of the most important factors to that continuance of well-being and youthful energy without which no School can prosper.

Let us endeavour to emulate these men in their small beginnings. Let us endeavour to keep up a constant inter-communion of thought between the pupil and his teachers (my presence here to-night I would desire to consider as an outcome of this form of friendship). Let us do all we can to help forward the Royal Medical Society. A healthful remembrance of the traditions of this School, in its double strength, intra-mural and extra-mural, a close friendship between those who teach and those who come to learn, and a flourishing Society for the honest criticism of all we do of our daily work, are to my mind the three main factors which summed up mean continued prosperity to the Edinburgh School, old in years, young in everything else.

I cannot give you a piece of sounder advice than this. Join this Society, take your part in its work (you had better stay away unless you intend to work, avoid the possibility of becoming "cumberers of the ground"). Do not be afraid to state your opinions; hold firmly to them, until you are satisfied that you are in error. When you see that you are in the wrong, do not hesitate to acknowledge your mistakes. There is no better way of disarming an opponent. Remember that you have much to learn and to unlearn, and see that you do not waste the opportunities which this Society affords.

This life is one of constant climbing. "Excelsior" is the motto of every human being worthy of being called a man. The uphill climb will be greatly lightened by a regular attendance here on the Friday nights. A student's life is, I fear, too much a constant poring over books, a constant attendance on classes, too much sameness, too little time for digestion after these mental meals, too much learning, too little thinking, The bow, to remain strong, must be occasionally unstrung. Do not say you have no time, the busiest man has always the most leisure. You cannot have a more health-giving mental recreation than by attending the weekly meetings of our Society. You will have a short weekly rest, which will perhaps save you from acquiring a sponge-like facility for the unadulterated absorption of brain food, which no doubt is fostered by a too close and unbroken attention to the instruction of others. Learn to instruct yourselves. Self-instruction is, to my mind, the antidote for a dreadful disease, so common in the present age, the chief symptom of which is a rounding off of that personality resident in every one of us. My chief anxiety as a teacher is to encourage every one to possess and treasure that personality, as far as in him lies, uninjured and unimpaired.

I have often said that there is no good without an evil; now, there is an evil lurking here to which the ready speaker is specially liable. I have seen specimens of this disease in my time. The patient suffers from a diarrhœa verborum, and is on the fair way to become a bletherer. Avoid this complaint, it is allied to two other diseases, self-complacency and self-conceit. Speak only after consideration, when you have something worth saying; study your subject, as Gordon studied his before writing his Dissertations, then your effort will be worth listening to. It matters not how stilted is your discourse. People think more of the *matter* than of the *manner* of a public appearance. In time the *manner* will come, it only gives a polish, which some may never reach. Avoid over-speaking and a tendency to covering over ignorances by a cloud of verbosity. Locke says in his "Transferring of Thoughts": "There is scarce anything more for the improvement of knowledge, for the ease of life, and the despatch of business, than for a man to be able to dispose of his own thoughts."

I say, Bring them here; expose them to the views of your fellow-students, as a merchant does his wares; you can have no better critics. Your ideas will be taken at their true worth. If they are not, it is not your fault.

Locke, in his chapter on "Bottoming," tells us that "we are to accustom ourselves in any question proposed, to examine and find out on what it bottoms." This is the plan to find out the true bottom of any question. He that does this will be able to cast off all that is superfluous; he will see what is pertinent, what is coherent, what is direct to and what slides by the question.

Let our great aim be to discover the truth, as Mr. Goodsir said to my dear friend the late Mr. Stirling: "Let us have the truth, God's truth, Mr. Stirling." I have no sympathy with Bacon when he calls Pilate "jesting Pilate," because he asked the searching question, "What is truth?" Pilate asked the question in despairing sadness, not in jest. In a sense, altogether apart from the sacred occasion on which these words were uttered, that question will never be fully answered in this world and of this world's affairs. Every inquiring mind is constantly searching after the truth.

It is the main question which must constantly occupy our attention. Should we not be thankful that we can never say, "It is enough?" There can be no more pitiable spectacle than the man who is so blinded that he imagines he has reached the summit. Such a man should weep as Alexander wept, because he had no more worlds to conquer.

In this hall you will soon see that the necessity for sorrow of this sort does not exist, that in having something to learn there is every reason for joy, that at the best we are groping after knowledge, seeing through a glass darkly,—we see in part, we know but in part. Here, however, you can try all things, here you can hold fast to that which is good. Here in *striving after the truth,* in trying *to grasp the good, in endeavouring to find the "bottom" of a question,* you will have found something worth living for, you will have overcome the great difficulty, and attained the great aim of a merely human existence.

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## *REVIEW.*

**The Operative Treatment of Intra-Thoracic Effusion**: BEING THE ESSAY TO WHICH THE MEDICAL SOCIETY OF LONDON AWARDED THE FOTHERGILLIAN GOLD MEDAL IN 1883. By NORMAN PORRITT, L.R.C.P. Lond., M.R.C.S. London: J. & A. Churchill, 1883.

LYING on the debateable ground between the province of the physician and that of the surgeon, and where they must meet, the one for diagnosis, and the other for treatment, the class of diseases comprised under the heading of intra-thoracic effusions possesses a peculiar interest. Nowhere, indeed, is the science and art of diagnosis of more prominent value, and nowhere is surgical aid more beneficial than in such cases. There is apt to be, we think, a degree of uncertainty in connection with such affections as belong, strictly speaking, to neither of the two great divisions of the medical profession, but this can hardly be said to be the case in reference to intra-thoracic effusions, which, especially of late years, have been fully treated of from both points of view, but seldom has the operative treatment in these cases received such minute and clear description as in the volume before us.

The diagnosis of the various pathological conditions included under the name of intra-thoracic effusion has been in great measure omitted, as the author states in his preface, and we would venture to suggest that in a future edition, which will no doubt soon be called for, it might be advisable to add a chapter dealing with this subject in its more recent developments.

The author recommends that the operation of paracentesis thoracis (which he rightly defines to mean tapping or aspiration of the chest, reserving the term thora-centesis for the open method—that by incision) should be performed by means of a canula of about the length and calibre of that of Dieulafoy's aspirator, united to a piece of indiarubber tubing sufficiently long to reach from the patient's chest to the floor. The trochar is thrust through the tubing close to the canula, which it readily enters; and if the apparatus has been washed out carefully with carbolic acid solution, there is no risk. The open end of the tube dips beneath the surface of a carbolic solution. This method has the merit of simplicity, but we must say we much prefer a well-made aspirator such as that constructed by Mathieu of Paris.

The author details, in a concise and satisfactory manner, the various difficulties which may be met with in attempting to evacuate the fluid, and the disagreeable complications which sometimes follow. Of the latter, the most alarming is syncope, and this receives pretty full treatment at Mr. Porritt's hands. He does not believe that it is so frequent of occurrence as is sometimes stated, and this is borne out by the experience of Bowditch, Trousseau, and Ewald, the last of whom, out of 250 cases, does not appear once to have met with it. In spite of this, however, that syncope does occasionally occur in the course of the operation there can be no doubt, and any indication of pallor or faintness should at once warn the careful practitioner to cease the abstraction of fluid from the chest. It might, indeed, it appears to us, be good practice in extreme cases of this kind, as well as in the severe dyspnœa which occasionally follows tapping, to endeavour to reintroduce some portion of the fluid which had been abstracted, for unquestionably whatever the exact causation of these symptoms may be, they are both more or less dependent upon the diminished pressure within the thorax. If a carefully antisepticised aspirator were used, it might, in dangerous cases, be possible to reverse the action of the instrument and to slowly force back the fluid into the chest wall. No danger could result from such a procedure were the fluid carefully protected from contact with septic particles.

Mr. Porritt advises that the point selected for the introduction of the aspirator needle should be "in the seventh or eighth interspace, about the junction of the anterior two-thirds with the posterior third of the chest wall." There is less danger of perforating the lung at this point than if an anterior or a lateral puncture be made, and there is also the further advantage that all the manipulations are conducted out of the patient's sight. In connection with this subject the author gives an interesting tabular statement of the point of puncture selected by the chief authorities on paracentesis thoracis.

With regard to the quantity of fluid which ought to be removed at one time, Mr. Porritt would limit it to two pints (rather too low, in our opinion), and while he recommends that it should be very slowly abstracted, he does not advise that Dr. Southey's method of leaving the trochar in position for some hours, should be followed.

It is not possible here to enter further into the details of Mr. Porritt's book. He treats very fully of empyæma, pneumothorax, pyo-pneumo-thorax, paracentesis pericardii, &c., and on each of these subjects his observations are original, and well worthy of study. On the whole, this work bears the marks of very considerable personal and practical knowledge of the questions involved, as well as of extensive reading and mental digestion. The author is careful not to be too diffuse in his observations, indeed his style is perhaps if anything rather too much condensed; but that is a good fault, and we have every confidence in recommending his work as one well worthy of careful perusal.

J. GRAHAM BROWN.

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# *REPORT ON PATHOLOGY.*

## *RECENT PAPERS.*

1. **Frerichs.**—UEBER DEN PLÖTZLICHEN TOD UND UEBER DAS COMA BEI DIABETES. (On Sudden Death and Coma in Cases of Diabetes.) *Zeitschrift f. kl. Med.*, vol. vi. (1883), p. 1.
2. **Friedländer, C.**—DIE MIKROKOKKEN DER PNEUMONIE. (The Micrococci of Pneumonia.) *Fortschritte der Medicin*, November, 1883.
3. **Dunin.**—ANATOMISCHE UNTERSUCHUNGEN ÜBER NIERENENTZÜNDUNG UND MORBUS BRIGHTII. (Anatomical Researches into Nephritis and Bright's Disease.) *Virchow's Arch.*, August, 1883.

4. **Cohnheim and Roy.**—UNTERSUCHUNGEN ÜBER DIE CIRCULATION IN DEN NIEREN. (Researches on the Renal Circulation.) *Virchow's Archiv.*, 1883.
5. **Hamilton, D. J.**—ON THE WAX-LIKE DISEASE OF THE HEART. *Journal of Anatomy and Physiology*, October, 1883.
6. **Greenish, R. W.**—A CASE OF PRIMARY SARCOMA OF THE PLEURA. *Journal of Anatomy and Physiology*, April, 1883.
7. **Runeberg.**—UEBER DEN EIWEISSGEHALT DER ASCITESFLÜSSIGKEITEN. (On the Quantity of Albumen contained in Ascites Fluids.) *Deutsch. Arch. f. kl. Med.*, vol. xxxiv. (1883), p. 1.

1. **Frerichs on Sudden Death and Coma in Diabetes.**—In a long and interesting article, Frerichs discusses the cause of that sudden and unexpected fatal termination which so frequently overtakes diabetic patients. Out of about four hundred cases which he himself has seen and carefully recorded, a large number terminated in this sudden way, and he proceeds to analysis these cases, dividing them into the following three groups:—

*First Group* includes cases of diabetes in which there suddenly appeared (often as the result of previous strain) general weakness, cold extremities, small failing pulse, somnolence, unconsciousness, and death. There was no smell of aceton in the urine, nor the characteristic reaction with chloride of iron. Of this group he gives four examples.

*Second Group.*—This includes cases in which the fatal result was ushered in with symptoms of general weakness, vomiting, disturbance of the bowels, or with local symptoms such as those of pharyngitis, bronchitis, bronchopneumonia. Very quickly such symptoms are followed by headache, restlessness, delirium, sometimes maniacal seizures, dyspnœa, cyanosis, weak, rapid pulse, fall of temperature, somnolence, coma, and death. The time occupied by this series of symptoms may be as short as twenty-four hours, or as long as three to five days. He gives fourteen examples of this group, many of them in very full detail.

*Third Group.*—In this group he includes cases in which death occurred without any dyspnœa, in which the radial artery was of fair volume, and the patient of good bodily strength. These patients first complained of headache, of a feeling as of drunkenness, with tottering gait and somnolence. They gradually sank into deep coma, and died, the breath having the characteristic smell of acetonæmia, and the urine assuming a burgundy red on the addition of chloride of iron. Frerichs gives seven examples of this group out of a very considerable number he has met with.

The latter half of this article is occupied with a discussion of the causes of this diabetic coma. He considers, in the light of his own observations, each theory which has been advanced, as follows:—

1. *Changes in the Nerve Centres.*—Sometimes hyperæmia has been assumed to be the cause of the coma; at other times, œdema or sclerosis; but none of these theories are supported by the autopsies in Frerichs's cases, although in one instance there was well-marked dilatation of the peri-vascular lymph spaces, and in another inter-meningeal extravasation. To neither of these lesions, however, does Frerichs attach much importance in connection with the causation of the coma. He notes that sometimes the delirium, convulsions, and coma of diabetes may end in a severe cerebral lesion (sanguineous apoplexy, softening, meningitis, &c.); but the differential diagnosis in such cases is usually not difficult.

2. *Changes in the Blood, thickening on account of increased quantity of*

*Sugar present—Alterations of the Form and Functions of the Blood Corpuscles.* —It has been supposed that the unusual quantity of sugar in the blood, caused by increased formation or defective elimination of that substance, increases the consistence of the plasma, and thereby alters the form and functions of the blood corpuscles. Against this theory is the varying proportion of the urinary secretion, and also the fact that the symptoms of cholera, where the blood is increased in consistency, do not resemble those of diabetic coma. Frerichs has frequently examined the blood in cases of diabetic coma, microscopically and spectroscopically, without detecting any alteration of consequence.

3. *Uræmia.*—The third theory which has been advanced to account for diabetic coma is that it is uræmic in its nature; and this has a certain probability, owing to the resemblance of the symptoms of the two conditions. There is frequently before death from diabetic coma suppression of the renal functions; often albuminuria sets in; and undoubtedly in many cases there are found after death textural changes in the kidneys. But such points do not serve to identify the two processes. There is often no renal symptom present at all, and when (as in an example given in the article) there exists a renal lesion as well as diabetes, and death takes place from uræmia, a differential diagnosis can be made.

4. *Fat-embolism.*—The blood of diabetics occasionally shows an accumulation of fatty globules; and Sanders and Hamilton have shown that these may form emboli, and occlude the arteries of lungs, liver, and kidneys. Such fat emboli Frerichs has never observed, although he has carefully sought for them in each autopsy.

5. *Acetonæmia.*—Ever since Petters, in 1857, showed that diabetic urine contained a substance which closely resembled aceton, it has been assumed by many that it was the cause of diabetic coma. It is not to be doubted that aceton does frequently occur in diabetic urine; but what influence it exerts upon the organism is still a matter of question. Experiments conducted by Frerichs showed that large doses of that substance (10-12 grms.) produced in man and in the lower animals no distinct symptoms, and the urine showed no trace of aceton. Frerichs therefore concludes that aceton is not the cause of diabetic coma.

6. *Diminished Excretion of Excrementitious Products.*—It has been lately stated (see Ebstein's paper in the *Deutsches Achiv.*, vol. xxiv.) that in cases of diabetes there occurs a necrotic degeneration of the renal epithelium, and a hyaline change in the loops of Henle, whereby the excretion of deleterious substances is interfered with. In this way, some believe, diabetic coma is produced. This view, according to Frerichs, is untenable, since that necrotic process occurs only very exceptionally, and since the hyaline or glycogenic degeneration of the renal tubules is found in all cases of diabetes, even when the death occurs as the result of phthisis pulmonalis, &c. Frerichs never failed to find this glycogenic degeneration in all his cases, and looks upon it as an essential part of diabetes.

Seeing, then, that all these theories fail to account for diabetic coma, Frerichs proceeds to formulate his own views on the subject, as follows:—He believes that the cause of death is different in different cases. In those included in his first group, he attributes death to paralysis of the heart, brought on by degeneration, and disappearance of its muscular substance. In the second and third group, on the other hand, he sees all the symptoms of blood-poisoning,—the headache, unsteadiness, delirium, somnolence, and coma, invariably accompanied with the characteristic change in the urine. There occur in the blood a series of chemical products, only the last of which (ethyl-diacetic acid and aceton) we know. The substances from which these are formed are, Frerichs believes, the cause of diabetic coma.

J. GRAHAM BROWN.

2. **C. Friedländer on the Micrococci of Pneumonia.**—Some years ago the presence of micro-organisms in croupous pneumonia was pointed out by Klebs and Eberth; and in 1881 Koch published an account of a similar case, with micro-photographs of the organisms in several of the tissues.

Friedländer confirmed these results, by observing eight cases where micrococci were constantly present in the contents of the pulmonary alveoli, and in the lymphatics. Following up this research, he now reports fifty recent cases where the same condition was found; the only cases where it was not present being those where the disease had reached a late period (nine to thirteen days) before proving fatal.

Remarking on the difficulty of differentiating micrococci from nuclei, he thus describes a method of staining which obviates it:—"The method consists simply in this, that the sections after being stained in Ehrlich's anilin-gentian-violet solution, are placed for a few moments in a weak iodine solution. When now placed in oil of cloves, the sections, which were previously stained deep blue, become almost colourless; and, on microscopic examination, the nuclei are found almost unstained, whilst the micrococci stand out as bright blue masses on a faint yellow ground."

He next describes the micrococci, which have a tendency to remain in pairs (diplococci), or in short chains of four or six, and are provided with a capsule, which differentiates them from all other pathogenic varieties. He considers this capsule to be of a mucoid nature from its staining reactions, and from its behaviour with alcohol and alkaline reagents.

The organisms were next cultivated apart from the body; at first on inspissated blood-serum, and subsequently in Koch's gelatine. In the latter they grew in a special manner; a globular mass appeared on the surface, and from this a tapering process extended downwards in the gelatine, following the line of inoculation, and giving rise to a characteristic "nail-like" appearance. These micrococci were found to possess no capsules. Inoculation of animals with the cultures so produced was next tried; firstly, by the injection of a quantity of the micrococci suspended in distilled water, into the right pleural cavity of each animal. Nine rabbits were thus inoculated, but not one of them was in the least affected. Thirty-two mice were treated in the same way, and all succumbed in from eighteen to twenty-eight hours, with dyspnœa, fall of temperature, and gradual weakening of the respiration, till death ensued. The lungs were found to be hepatised, and both pleural cavities contained a turbid fluid exudation; in this, and in the lung, spleen, and blood, were found micrococci, which in all cases had the characteristic capsule. Of 11 guinea-pigs similarly treated 6 died, and a similar condition was found. Of 5 dogs, 1 died in forty hours with typical croupous pneumonia; the 4 others recovered after an illness of two days, with rise of temperature and distress in breathing. Alongside all these, a careful series of control experiments was carried out; each control animal was inoculated in the same way as the test animals, except that the substance used had been previously sterilised by heating to 80° C. for twenty minutes; the animal was then kept in the same conditions as the others, and in no case suffered any disturbance in health.

Friedländer also tried inhalation experiments, for which he used a more dilute suspension of the micrococci in distilled water; he vapourised it by means of a hand-spray, and allowed the vapour to be breathed by a series of mice. Of 12 subjected to this method, 4 died of typical croupous pneumonia in twenty to thirty hours, and were found to present exactly the same appearances as those which had been inoculated by injection.

It was found that the micrococci and their capsules varied somewhat in relative size in different species of animals; but on inoculating gelatine with the blood of any of these, the typical nail-shaped growth of micrococci without capsules was always produced.

Through the kindness of Dr. Friedländer, I had recently the opportunity of seeing some of his preparations, and I can fully endorse his description of the appearances presented.

ARTHUR W. HARE.

**3. Dunin on Anatomical Researches into Nephritis and Bright's Disease.**—Dr. Dunin discusses two questions in this paper—

(1.) Whether all known forms of nephritis are essentially the same; and
(2.) Whether the starting-point of Bright's disease is to be found in the epithelium of the tubules, or in the connective tissue and vessels.

In reference to the first, he states that the changes in Bright's disease are always the same qualitatively, consisting principally in—(1) swelling, destruction, and proliferation (?) of the epithelial cells; (2) infiltration and fibrous hyperplasia; (3) degenerative changes in the glomeruli; and (4) thickening of the walls of vessels;—and that the different appearances in the various forms of Bright's disease are due to the qualitative share of these changes. He considers that even the waxy kidney is no exception, as in it the waxy change is merely added to other changes, principally interstitial. In addition to waxy kidney, he distinguishes two forms of kidney in chronic Bright's disease—the "large white kidney" (parenchymatous of some authors) and the "granular contracted kidney," but forming a transition between these, he notes another form described by Weigert, Wagner, and others, as "white hard kidney," often difficult to classify with either of the above, the principal characters of one or other predominating.

He next considers the effect of infectious diseases on the kidneys, and mentions that post-scarlatinal nephritis is universally recognised as being typical acute Bright, and that it passes occasionally into the chronic form. Authorities only disagree as to the nature of both; some, looking at them from a clinical and "naked-eye" point of view, call them "parenchymatous"; others (Charcot, Wsgner, &c.) describe them as interstitial.

A similar condition he describes as occurring frequently in relapsing fever, though the changes are not so well marked, but he finds it extremely rare in typhoid and typhus; the only changes found in these cases being cloudy swelling of the epithelium and œdema of the fibrous tissue. In puerperal and other septic fevers, micrococci are found in large numbers in the kidneys, and there is an extreme degree of destruction of epithelium, but no infiltration with small cells.

In the forms of "granular" kidney occurring in old age, or along with atheroma or venous congestion, there is extensive degeneration of epithelium, the walls of the tubules come together, and there is a certain increase in the fibrous tissue,—the inflammatory condition, where present, being very slight. These kidneys, however, do not present the appearance of Bright's disease, either clinically or anatomically.

He comes to the conclusion, then, that all forms of diffuse nephritis have not the same pathological process; that among them is a series of forms passing directly into one another, and corresponding to a well-marked clinical picture—Bright's disease; and that all others have nothing in common with these.

In discussing the second question, he says there can be no doubt we are justified in applying the name "diffuse nephritis" to all forms of Bright's disease, but that it is doubtful whether there is not an early stage in which the change is confined to one set of structures. Cases of Bright are seldom found in which connective tissue changes are not the most important. In syphilis, phthisis, &c., we meet with kidneys where the epithelium is much affected, and there is no interstitial change; but these present none of the clinical features of Bright's disease. Again, the amount of interstitial change does not correspond to the degeneration of epithelium. In typhoid, puerperal fever, &c., we find great destruction of epithelium, with only slight exudation into connective tissue, the degenerated epithelium escaping with the urine, and not having the opportunity of causing irritation in the neighbouring tissues, as would happen if it were absorbed by the lymphatics to any extent. In many cases of chronic Bright, on the other hand, we often meet with tubules in which the epithelium is almost quite intact, while there is advanced connective tissue hyperplasia between the tubules. In granular kidneys of old age, atheroma, and venous congestion, there is very early degeneration of epithelium, followed by a slight amount of intertubular infiltration and hyperplasia, but these in no way correspond to Bright's disease.

Charcot and Gombault, as a result of their investigations on the effect of ligature of the ureters, and of lead-poisoning, formed their theory of "epithelial cirrhosis" as the origin of granular contracted kidney,—one of their reasons being that degeneration was found in epithelium in limited areas, with subsequent intertubular infiltration; but in these the glomeruli were seldom affected, and the appearances were much more constantly the same than in Bright. Moreover, Charcot himself found it necessary to exclude the interstitial changes in large white kidney from his epithelial cirrhosis theory; and Dr. Dunin considers it pretty well established that the changes in white kidney and granular contracted kidney closely correspond.

He therefore looks upon Bright's disease as from the beginning an inflammatory process, consisting at first in a vascular change, with exudation of leucocytes into the glomeruli, tubules, and interstitial tissues, this leading to fibrous hyperplasia.

CHARLES KENNEDY.

4. **Cohnheim and Roy on the Renal Circulation.**—Cohnheim and Roy, in a beautiful set of experiments, have recently investigated the phenomena of the circulation in the kidneys. They employ two instruments—one the "plethysmometer," or "oncometer," to contain the kidney; the other the "oncograph," to record the curve given by variations in the size of the kidney. The oncometer consists of metal cups adjusted so as to enclose a central cavity, the wall of the cavity being perforated by a single large opening to allow the renal vessels to convey their blood to and from the organ placed inside the instrument. Within the metal capsule are two bags of an animal membrane, each filled with olive oil, which in one bag comes in contact with the float bearing the recording needle of the oncograph. Thus, when the kidney is brought through an abdominal wound, and accurately pillowed between the two oil cushions of the oncometer, it will be evident that any change in its volume will give rise to waves in the oily fluid, which may be correctly recorded. These oncographic curves are of little use unless those of the blood pressure in the same animal are simultaneously ascertained.

The authors proved that frequently when there was any diminution in the size of the kidneys, there was a coincident rise in the blood pressure, and *vice versa;* but this did not always occur, for it was often observed that with extreme variations in the size of the kidneys there was no appreciable difference in the blood pressure; it was also found that the two kidneys acted independently of one another, the changes occurring being neither synchronous nor the same in extent.

By asphyxiating the animal, poisoning it with strychnia, or irritating the central end of a sensory nerve, a series of like results was obtained. When the animal is asphyxiated a great rise occurs in the systemic arterial blood pressure, and the kidneys shrink in size. Both of these conditions pass away as the animal is being resuscitated. These results can be reproduced in their entirety even although the splanchnic nerves have been previously divided; this fact makes it probable that these nerves do not contain any vasomotor fibres for the kidneys, which the authors suggest pass into the organs along with the nerves of the hilus.

When the kidney was altogether separated from nervous influences, and asphyxia induced, there occurred a great dilatation of the organ, accompanied by a rise in the blood pressure, definitely proving that the contraction of the arterioles is not due to a direct stimulation of the vessels by the poisoned blood, but to an exalted action of the vasomotor nerves.

Irritation of the central end of a divided sensory nerve produces the same results that asphyxia would, with this difference, however, that the contracted state of the kidneys persists long after the blood pressure has fallen to normal. When the splanchnics were divided the experimenters expected to find, as Bezold and Cyon had said, a great increase in the volume of the kidneys, but this was not the case. On irritating the central end of the divided splanchnic nerves, contraction of the kidneys and a rise in the blood pressure ensued. When all the nerves going to the kidneys are cut across, no amount of direct or reflex nervous irritation will cause contraction; on the other hand, the organs increase in size, a change which is accompanied by a rise in the blood pressure. These results are pregnant with ideas to pathologists, but the authors themselves have not attempted much in this direction, as they have not yet published the full result of their labours.

A. M. ADAMS.

5. **Hamilton on Wax-like Disease of the Heart.** — In this paper Professor Hamilton draws attention to the fact that waxy disease of the heart is by no means of uncommon occurrence, though evidenced by no macroscopic change beyond "a faint milkiness of the endocardium occurring in small patches." He points out that the disease is usually localised in the endocardium and in the myocardium, that it is most readily recognised by the iodine test in the endocardium of the auricles, especially the right, but that it is also met with in the ventricles. The brown-stained patches are round or irregular in shape, and are "about half a line to a line in breadth." The most interesting part of the paper, however, is that which deals with the changes in the tissues as seen under the microscope. It is laid down that the muscular fibres proper are unaffected by the true waxy change, but that they undergo an atrophic change similar to that seen in the media of vessels, and in the liver and kidney, where atrophy of the muscular elements or paranchymatous cells is determined by the pressure of the waxy material situated between the individual fibres or cells. The waxy change is entirely confined to the spaces or tissues between the muscles, except in very rare cases, where it is held that there is an infiltra-

tion of the muscle itself with amyloid material, as it gives a slight pink reaction, with methyl-aniline violet. In the tissues or spaces between the muscular fibres the waxy change undoubtedly takes place, but it is at this point that there seems to be a divergence of opinion. In this position Hamilton holds that the waxy material is poured out from the capillaries, and that it then finds its way "between the perimysum internum and the muscular fibril," and he believes that the waxy material is poured out from the smaller vessels into the surrounding tissues, and that as it accumulates it causes atrophy of the tissues by direct pressure upon them.

With this theory Kyber (*Virch. Arch.* Bd. 81) does not entirely agree. He maintains that whether the process is an infiltration or a degeneration, or both, it usually commences in the capillary walls or in the connective tissue fibrils by which the capillaries are surrounded; that these become swollen, and then give all the waxy reactions with iodine and sulphuric acid and with methyl-aniline violet. He further states that the fibrous tissue which surrounds the muscular fibres of the middle coat of a small artery, for instance, is the seat of the waxy change, and not the space between this fibrous covering of the muscular element. When such able observers differ so markedly it becomes an exceedingly difficult matter to decide, but so far as the writer's observations go, it appears that Kyber's statement corresponds with what may be observed in most cases of waxy disease. For the study of the changes which occur in arteries of medium size, as Dr. C. Kennedy points out, the vessels of the omentum are perhaps the best, as they are frequently affected by waxy disease, they are readily stained with methyl-aniline violet, and are easily examined. In them the non-striped muscular fibrils are seen under a high power (× 300) as blue dots or lines, according as they are focussed in transverse or longitudinal section. When a transverse section of a muscular fibre is carefully focussed, it is seen as a blue point, surrounding which is a ring or rather horse-shoe shaped band of pink material; this corresponds to the waxy material around the fibres in other positions. Focussing down, the fibre may be followed for some distance around the vessel and accompanying it, on each side, is a pink band. On careful examination the commencement of the process of swelling and gradual conversion of the fibrous tissue into waxy material may be observed, especially at the margin of the waxy patch.

Another feature which points away from infiltration in the waxy condition is the change which takes place in the so-called elastic fibrils which are described as surrounding the blood sinuses in the spleen. If a section of a spleen in which there is early diffuse waxy change be stained with methyl-analine violet and then transferred to a strong solution of oxalic acid and examined, small delicate pink points may be observed surrounding the sinuses, especially those of larger size. These points correspond in everything but size with the sections of the elastic bands which surround the sinuses like barrel-hoops. The stained points are larger, and are therefore presumably sections of swollen and waxy elastic fibres, and here the change can scarcely be due to infiltration alone, as they are surrounded by none other of the waxy material.

In other parts of the spleen, or in a waxy gland treated in the same way, the strands of the adenoid reticulum may also be seen swollen and stained pink; whilst between them the adenoid corpuscles are usually comparatively few in number, and atrophied in appearance. Looking at these facts, it behoves one to be very careful in forming an opinion as to the true nature of waxy disease. From Hamilton's descriptions and drawings there appears to be a condition of infiltration of tissues due to a pouring out of waxy material into spaces, and a soaking of fibres, &c., with this material; whilst it is held—and held very strongly by others—that the infiltration is only a part of the process, that there must be some degenerative change in the tissues which become the seat of the waxy disease, and that the waxy material is never found lying free in spaces, but always in tissue elements, especially in those tissues in which there is a low type of development, such as fibrous and elastic tissues,—though in some cases, especially in the later stages of the disease, the most highly-organised tissue elements may become involved in the waxy change.

6. **Greenish on Primary Sarcoma of the Pleura.**—Mr. Greenish adds another case to a somewhat short list of such primary tumours of the pleura. On the pleura of the left side, especially on the diaphragmatic and upper part of the costal pleura, were found numerous nodules, some stalked, others sessile, the larger ones being pigmented, whilst around the sessile nodules there was "a zone of congested vessels."

"On section, the nodules were hard and cartilaginous; had a greyish, semi-translucent appearance generally, with patches of pigment, and often containing an opaque white patch in the centre." On the diaphragmatic pleura the nodules were so small, "but so numerous, that the serous membrane was in great part converted into an opaque membrane from one to two millimetres in thickness."

On microscopic examination, the tumour presented all the appearances of an alveolar sarcoma, the stroma or fibrous bands being very unequally developed at different points, the alveolar spaces being larger where the quantity of fibrous stroma was greatest. The structure might very well be described as that of an endothelial cancer; and, as Mr. Greenish points out, the growth really appears to commence by proliferation of the connective tissue cells, which, it must be remembered, are nothing but endothelial cells, and as truly line part of the lymph system as do those which line the lymphatic vessels. The structure of the tumour described appears to be similar to that of the alveolar sarcoma met with in the deeper cerebral membranes, and in the true skin.

G. Sims Woodhead.

7. **Runeberg on Ascites Fluids.**—The results to which Runeberg's observations on the quantity of albumen in ascites fluids in the various processes which produce a peritoneal transudation led him, are as follows:—The quantity of albumen in simple hydræmic transudations he found to be usually under ·3 per cent., though it sometimes rose as high as 1 per cent. When the ascites resulted from portal stasis, the transudation differed much in respect of the amount of albumen it contained. In long standing cases in which tapping has been often performed, or in which from other causes a cachectic condition has developed, the albumen reaches about ·4 per cent. Where there is no cachexia, it stands between 1 and 1·5 per cent. These figures are only exceeded when the transudation is in process of absorption, when the quantity may be as high as 3 per cent. When the transudation results from general venous stasis, the amount of albumen usually reaches 1·5 to 2 per cent., and is still higher during absorption. When cachexia sets in in such cases, the figure sinks to 1 per cent. In carcinoma of the peritoneum, the albumen averages 3 to 4 per cent.

In simple chronic peritonitis, the quantity of albumen present reaches as high as 5 or even 6 per cent.

From a practical point of view, it is of importance to be able to say from the amount of albumen present in a fluid drawn off by tapping the peritoneum, what sort of process has occasioned the transudation. The following statement Runeberg gives as the result of very numerous observations:—

0·3 per cent. of albumen, and under, indicates a pure hydræmic ascites.

0·3-0·5 per cent. indicates hydræmic ascites, with hydræmia not highly-developed, or in process of absorption; portal stasis, with highly-developed hydræmia; general venous stasis, with highly-developed hydræmia.

1-1·5 per cent. indicates portal stasis; general venous stasis, with hydræmia.

1·5-2 per cent. indicates general venous stasis, along with specially good nutrition of long standing, or in process of absorption.

2-2·5 per cent. indicates general venous stasis, along with good nutrition; portal stasis in old cases where the abdomen is much distended, or where absorption is taking place.

2·5-3 per cent. occurs in the same conditions as these last named, but only exceptionally; in carcinomatous and inflammatory transudations where there is very well marked cachexia.

3-4·5 per cent. in carcinomatous or inflammatory exudations, along with general cachexia.

4·5-6 per cent. in inflammatory processes where the nutrition is good; in carcinomatous peritonitis, exceptionally, when the case is one of old standing, and the abdomen tense.

The most accurate way of estimating the quantity of albumen is that of Scherer, but it is too difficult to be of practical clinical use. Fortunately the specific gravity of a transudation fluid gives a tolerably accurate guide to the quantity of albumen it contains. This is well shown in the following table by Reuss:—

TABLE OF THE RELATION BETWEEN THE SPECIFIC GRAVITY OF TRANSUDATIONS AND THE QUANTITY OF ALBUMEN PRESENT IN THEM.

| Specific Gravity. | Percentage of Albumen. | Specific Gravity. | Percentage of Albumen. | Specific Gravity. | Percentage of Albumen. |
|---|---|---|---|---|---|
| 1008 | 0·2 | 1015 | 2·8 | 1022 | 5·5 |
| 1009 | 0·6 | 1016 | 3·2 | 1023 | 5·8 |
| 1010 | 1·0 | 1017 | 3·6 | 1024 | 6·2 |
| 1011 | 1·3 | 1018 | 4·0 | 1025 | 6·6 |
| 1012 | 1·7 | 1019 | 4·3 | 1026 | 7·0 |
| 1013 | 2·1 | 1020 | 4·7 | 1027 | 7·3 |
| 1014 | 2·5 | 1021 | 5·1 | 1028 | 7·7 |

The transudation of a purely cachectic ascites is invariably colourless, or very slightly yellow, and very fluid. It is opalescent, often so much so as to resemble milky water, and this appearance is not caused by the presence of formed elements, nor of fat globules, but is probably (as Hoffmann supposes) due to the presence of a modification of albumen. Formed elements do exist, but in very small numbers. The appearance of cachectic ascitic fluid is thus characteristic.

In ascites of portal stasis the transudation differs in appearance according to the quantity of albumen it holds in solution. When the amount is small, the fluid is opalescent and light yellow. When there is much albumen, the colour becomes deeper in the yellow, and quite clear. White blood corpuscles are present in considerable quantity, and red corpuscles can always be found.

In general blood stasis the ascitic fluid is dark-brown in colour, and contains many red blood corpuscles, but not so many as to form a red sediment. The transudation in simple chronic peritonitis is clear yellow, thickish from the presence of many leucocytes, and contains so many red corpuscles that a thin red layer forms at the bottom of the glass when the fluid stands for some time. Small shreds of coagulated fibrin are also to be found.

In carcinomatous peritonitis the transudation has a quite peculiar appearance. It contains formed elements in such numbers that it thereby acquires a cloudy, greyish, dirty appearance. When allowed to stand these elements sink to the bottom, leaving the fluid above clear yellow. The precipitate consists of cells irregular in outline, containing vacuoles, and closely resembling swollen endothelial cells. There are in addition small, white, round cells in large numbers, and many red blood corpuscles.

The diagnostic value of the observations contained in this article is very considerable. The histories of thirty-seven cases of ascites are appended.

J. Graham Brown.

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# *REPORT ON THERAPEUTICS.*

## *RECENT PAPERS.*

1. **Bodländer.**—Die Ausscheidung aufgenommenen Weingeistes aus dem Körper. (On the Excretion of Alcohol from the Body.) *Arch. f. d. ges. Phys.* (Pflüger's), vol. xxxii. p. 398.
2. **Harlingen.** — Experiments in the Use of Naphtol in the Treatment of Skin Diseases. *American Journal of the Medical Sciences*, Oct. 1883.
3. **Hoffmann, F. A.**—Bericht über einige Versuche Infectionsfieber durch Chinin-Infusion zu Coupiren. (Report of Some Experiments on the Cutting Short of Infection-Fever by means of the Injection of Quinine.) *Arch. f. exp. Pathologie und Pharmakologie*, vol. xvii. (1883), p. 363.
4. **Aron, Th.** — Experimentelle Studien über Schlangengift. (Experimental Studies on Snake-Poison.) *Zeitschrift f. klin. Med.* vol. vi. (1883), p. 332.
5. **Albertoni.**—Ueber die Wirkung des Cotoins und des Paracotoins. (On the Action of Cotoin and Paracotoin.) *Archiv. f. exp. Path. und Pharmakologie*, vol. xvii. p. 291.
6. **Schiffer.**—Ueber die Wirkung des Guachamacá-Giftes. (On the Action of Guachamacá Poison.) *Arch. f. Anat. und. Physiol.* (*Phys. Abtheilung*), 1883, p. 289.
7. **Leube.**—Beiträge zur Therapie der Magenkrankheiten. (Contributions to the Therapeutics of Diseases of the Stomach.) *Zeitschrift f. kl. Med.*, vol. vi. (1883), p. 189.

1. **Bodländer on the Excretion of Alcohol.**—The three main actions of alcohol may be considered to be—(1) stimulating, (2) temperature depressing, (3) nourishing. While the first two have been placed beyond doubt, the third is still subject to question, and it was to aid in solving that problem that the experiments here recorded were undertaken. The question comes to be,

whether the alcohol becomes burned up in the organism, or whether it is excreted unchanged. The experiments of Bodländer were solely directed to ascertain the amount of excretion of alcohol by the kidneys, the skin, the lungs, and the intestinal tract.

*Excretion by the Kidneys.*—Bodländer first experimented on himself to ascertain what proportion of the alcohol was excreted in the urine. The alcohol was invariably pure, and was mixed with water, sugar, and lemon juice before being taken. The chief excretion took place, he found, in the first hour after swallowing, a smaller portion in the second, and only a trace in the third hour. The results he obtained are given in the following table:—

| | Quantity of Alcohol taken. | Concentration in which it was taken. | Quantity of Alcohol excreted in percentage of that taken. | The last appearance of Alcohol in the urine appeared after the following hours: |
|---|---|---|---|---|
| 1 | 50 c.cm. | 20 per cent. | 1·52 per cent. | 3 |
| 2 | 50 „ | 25 „ | 0·17 „ | 2 |
| 3 | 50 „ | 25 „ | 1·3 „ | 4½ |
| 4 | 60 „ | 20 „ | 0·6 „ | 2¼ |
| 5 | 60 „ | 25 „ | 0·63 „ | 2¼ |
| 6 | 70 „ | 25 „ | 1·79 „ | 2¼ |
| 7 | 70 „ | 33 „ | 0·98 „ | 4 |
| 8 | 80 „ | 20 „ | 1·225 „ | 1¾ |
| 9 | 80 „ | 20 „ | 1·622 „ | 4¼ |
| 10 | 80 „ | 25 „ | 1·74 „ | 4 |
| 11 | 80 „ | 44·5 „ | 0·694 „ | 2½ |
| 12 | 100 „ | 50 „ | 1·86 „ | 2½ |
| | | In average, 1·177 per cent. | | |

Experiments on a dog, weighing 6800 grammes, gave results which were much the same as those already tabulated.

*Excretion by the Skin.*—Experiments conducted with great care upon dogs showed, that when the alcohol was introduced into the stomach there was no excretion of that substance by the skin. In man, the excretion of alcohol in the perspiration did not amount to more than a mere trace.

*Excretion by the Lungs.*—In dogs, Bodländer found that the percentage of the alcohol taken into the stomach which was excreted by the lungs only amounted on an average to 1·946 per cent. In man the experiments gave the following results:—

| | Quantity of Alcohol taken. | Concentration in which it was taken. | Percentage of the total quantity excreted by the lungs. |
|---|---|---|---|
| 1 | 80 c.cm. | 44·4 per cent. | 1·905 per cent. |
| 2 | 60 „ | 25 „ | 1·6735 „ |
| 3 | 50 „ | 20 „ | 0·815 „ |
| | | On an average, 5·198 per cent. | |

*Excretion by the Intestines.*—Experiments on man showed that no alcohol passed out in the fæces. Parkes collected the fæces for seven or eight days of a person who was, during that time, drinking much alcohol. On distillation, he obtained a small alcoholic reaction. Bodländer, however, points out that the fermentative changes which were going on during these days would amply account for this result.

In conclusion, Bodländer summarises his results as follows:—

| Manner of Excretion. | In Dogs. | | In Man. | |
|---|---|---|---|---|
| | Average of Observations. | Percentage of Excretion. | Average of Observations. | Percentage of Excretion. |
| Kidneys, . | 4 | 1·576 | 12 | 1·177 |
| Skin, . . | 2 | 0·0 | 3 | 0·140 |
| Lungs, . | 3 | 1·946 | 3 | 1·598 |
| Intestines, . | ... | ... | 1 | 0·0 |
| | | Total, 3·522 p.c. | | Total, 2·915 p.c. |

From these observations, it appears that no noteworthy quantity of alcohol leaves the human body unoxidised—at least, in health. It also appears that aldehyde and acetic acid cannot be the terminal excretion products, for their presence would have been detected in the course of these experiments. In the position of our present knowledge, it is only possible to conclude that under ordinary circumstances at least 95 per cent. of the alcohol swallowed becomes broken up into carbonic acid and water.

2. **Harlingen on Naphtol in the Treatment of Skin Disease.**—Naphtol was first recommended for the treatment of skin disease by Kaposi in 1881. Since that time it has been extensively employed in Vienna, and apparently with very good results. The experience which Harlingen has had in Philadelphia, has also been favourable. It is, he believes, the very best treatment for scabies which has yet been brought forward. The naphtol is made up with vaselin (about 80 grains to the ounce) and rubbed firmly over the affected parts, after which the patient is thoroughly powdered with starch, and wrapped in a linen sheet. In eczema, Harlingen has failed to obtain good results by naphtol treatment; but in psoriasis, he finds its curative effect to be nearly, if not quite as powerful, as pyrogallic acid, without the dangerous toxic effect of the latter. The naphtol used is the $\beta$ naphtol of chemistry, and occurs in commerce as an indistinctly crystalline, dark, semi-transparent substance.

3. **Hoffmann on Quinine in Fever.**—The remarkably good results which follow the treatment of typhus with quinine induced Hoffmann to attempt to cut the disease short by pushing the action of the drug, injecting it directly into the blood-stream. By experiments upon animals he ascertained that it was quite

safe to inject alcohol of 45 or 48 per cent. into the blood, provided that ordinary precautions were used. In such an alcohol it is possible to dissolve hydrochlorate of quinine to such an amount that each cubic centimetre contains a gramme of the salt. This solution was prepared by dissolving the necessary quantity of quinine in hot absolute alcohol, and diluting this with distilled water (which had been carefully boiled) until it attained the desired proportion. The solution was then filtered. The vein having been exposed, the fluid was drawn up into a pipette, and very slowly injected with all possible precautions. Hoffmann began by trying small doses, but it was not until he reached 1 gramme that any marked effect upon the temperature was observed. The highest dose administered in this way was 2·1 grammes. The drug given in this manner diminished the fever very rapidly, and the dose appeared to have the activity of one of twice the amount given by the mouth. The pulse became slower and stronger, no doubt in part due to the alcohol. The author could not observe that in any case the disease was cut short by this energetic treatment, but the negative results attained are of some therapeutic interest, showing as they do that intravenous injections of alcoholic solution of quinine may be safely made use of. Whether such treatment might cut short infectious processes if taken at a sufficiently early stage is a question which is not answered by these experiments, which were performed when the disease was fully established.

4. **Aron on Cobra Poison.**—This article contains the results of one of the most extended and careful inquiries into the subject of snake-poison and its antidotes yet published. Aron obtained a glass tube from India containing the dried-up poison of the cobra (*Naja tripudians*), which he found to be very energetic. The animals poisoned fell into a state of somnolence, and the breathing became at first accelerated, then dyspnoic, and convulsions occurred before death. The blood of poisoned animals is strongly venous, but shows no other abnormality. It is not of itself poisonous when administered to another animal. The muscular irritability is greatly depressed by direct application of cobra poison. The poison acts with special energy upon the nerve-centres, paralysing them, so that the animal loses consciousness, and the respirations become weaker and slower, until ultimately they cease. The result, of course, is that the blood becomes venous, and then ensue the usual clonic-tonic convulsions of this condition. On the cord the cobra poison acts so as to prevent the conduction of motor impressions from the brain to the muscles of the back and limbs; but it does not appear to interfere with sensory conduction, or with reflex action. The motor nerves are not themselves affected.

*Antidotes to Cobra Poison.*—Aron has tested many of the proposed antidotes, some of which he found very efficacious.

*Alcohol* only delays the action of the poison, by reason of its stimulating action on the heart. It is, however, to be recommended as a symptomatic remedy.

*Atropin and Caffein* had apparently no antidotal action, though in regard to the former, it must be remarked that its action is so much more energetic in man than in rabbits that possibly in the former it might be of some service.

*Ozone.*—It was found that doses of cobra poison which would have been fatal, lost their poisonous effect when a stream of ozonised air was passed over them for some time. It seems therefore clear that the active substance in cobra poison is a body which when oxidised loses its activity.

*Permanganate of Potash* when injected (3-5 °/₀ solution) into the depth of the fresh wound destroys, or at least weakens, the action of the cobra poison.

*Chloride of Lime* proved very efficacious as an antidote, and Aron recommends its application in the following way: The bitten limb ought at once to be ligatured tightly, so as to prevent absorption, and a two per cent. solution of chloride of lime injected with a hypodermic syringe, as quickly as possible, into the depth of the wound. The value of such a treatment as this is amply indicated in Aron's experiments.

**5. Albertoni on the Action of Cotoin and Paracotoin.**—These two substances, which are very little known, appear to be well worthy of notice from a therapeutic point of view, being of considerable use in cases of obstinate diarrhœa. They represent two active principles contained in the bark of a Bolivian tree—the Coto-coto. The action of these substances has been to a certain extent investigated by Burkhart and by Pribram. The latter found that cotoin possessed a certain antiseptic and antimycotic action. A more complete investigation of their properties has been very recently made by Albertoni, the results of which are here given.

When introduced into the stomach, cotoin does not become dissolved until it reaches the intestines, when it passes into solution under the influence of the bile and the intestinal juices. It has no unpleasant action, and causes no constipation. In regard particularly to therapeutics, the most important action which has been ascribed to cotoin is its power of arresting fermentation in the intestines. Now, as fermentation in the intestines gives rise to various products, such as phenol, indol, skatol, &c., it seemed to Albertoni that if cotoin arrested the fermentation, then these substances would be diminished in quantity in the urine. In regard to phenol, Albertoni found that this was not the case, and he ascribes the results of the experiments of Burkhart and Pribram, who found that the administration of cotoin diminished the indican in the urine in cases of diarrhœa, to the fact that the intestinal disorder was checked by the dose. Nor could Albertoni detect any influence of cotoin upon fermentative processes out of the body, as the development of bacteria was not interfered with, nor the putreficative process delayed by its presence. Experiments upon the intestines showed that cotoin produced an active dilatation of the abdominal vessels. Paracotoin exerts the same action, but less energetically.

Therapeutically, coto bark and cotoin have been found by many observers to be valuable in cases of diarrhœa. Albertoni has tested the power of the drug in many cases, and found it useful in the diarrhœa of insanity, in chronic intestinal catarrh, in phthisis, and in children suffering from rickets.

The theory of the action of this substance which has been used with success by so many physicians, is a little difficult to arrive at. Albertoni believes that its restraining action on diarrhœa is certainly not due to arrest of the peristaltic action of the intestines, nor to an astringent or an anti-putrefactive action. He thinks that its good effect depends upon its action in dilating the intestinal blood vessels. This gives rise to a more healthy action in the epithelium, and more rapid absorption of the materials contained in the intestine. These changes are of course favourable to the arrest of the diarrhœa. Albertoni has found the action of cotoin to be increased by combination with bismuth.

**6. Schiffer on the Action of Guachamacá Poison.**—Attention was first called to the action of this South American poison by Carl Sachs,* who with difficulty procured and brought home with him some twigs and leaves of the poisonous tree. His unexpected death occurred before he had made any physiological examination of the properties of the poison. This, however, Schiffer has now done. He obtained an extract from the bark, which had a tobacco-like smell (resembling in this respect curara), a bitter taste, and when evaporated to dryness left a hard resinous body, which dissolved readily in water and dilute alcohol, with difficulty in absolute alcohol, and hardly at all in ether or chloroform. The chemical reactions showed that the poison was in this respect allied to curara. The physiological action was also similar. In frogs the injection into a lymph sac of 20 mgrms. of the extract was followed, after an interval of fifteen minutes, by symptoms of paralysis, in which the heart was not implicated. The respiration ceased, and the lymph-hearts stopped. When the muscles were directly stimulated with a weak electric current, contraction at once occurred, while to stimulation of the nerves, not the slightest response took place. Experiments upon rabbits and pigeons also showed that there existed a remarkable resemblance between the action of guachamacá poison and that of curara, but there were also important differences to be detected. The guachamacá poison does not paralyse the motor nerve endings so completely as curara unless the maximum doses are given, and this is especially noticeable in connection with the respiratory muscles and the heart, which, with moderate doses remain in action, so that even warm-blooded animals may survive unless the dose be large. It also acts more upon the central nervous system than curara.

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* In his book "Aus den Llanos," Leipzig, 1879.—Carl Sachs was one of the most promising of the younger German scientists. He lost his life in an Alpine accident shortly after publishing this work.—J. G. B.

This poison may prove to be of very considerable therapeutic use. It is much to be desired that we should have an agent capable of controlling muscular spasms. For this purpose curara can hardly be employed, because the dose which will have that action lies so very close to that which will prove dangerous. According to these experiments it would appear that the difference between an active and a dangerous dose of this guachamacá poison is very considerable, so that it might be safely employed in suitable cases. Schiffer appears to have administered with good effect a dose of the poison subcu taneously, equal to ten mgrms. of the extract, to a patient suffering from muscular spasm.

7. **Leube on the Therapeutics of Diseases of the Stomach.**—This article is the practical application of certain investigations by this author, an account of which has already appeared in this Journal (No. 1), and deals with the various lines of treatment to be followed in gastric cases. In regard to diet, the author recommends for the most obstinate cases clear soup, Rosenthal's solution of meat, milk, raw or soft-boiled eggs; subsequently he allows boiled calf brain, sweet bread, fowl, and pigeon. When these diets prove suitable, he next tries half-cooked butcher meat, and finally all ordinary food of an easily digested kind.

*The Therapeutic use of the Stomach-Tube.*—In cases of dilated stomach all who have employed the method of washing out that organ will agree with Leube that the patient after the first washing out feels an enormous benefit, but when the method is regularly persevered in this effect is in great measure lost, as the digestive power is only to a certain extent re-established, and the semi-digested food being removed, the body loses the benefit of what little work the stomach is doing, and the weight falls. Theoretically, the best practice would undoubtedly be to transfer this material to the duodenum before the stomach was washed out. Leube attempted to accomplish this by guiding the stomach-tube to the pylorus, drawing up the contents of the stomach with a syringe, and forcibly injecting the material against the pyloric opening. This was not, however, successful. He then thought that, as the opening of the pylorus at the end of gastric digestion is supposed to be occaasioned by the increased acidity, it might be possible to bring this about by artificially adding acid at the proper time. This, however, failed to bring about the desired result. A question of practical importance is, at what time of day the washing out of the stomach ought to be performed. The stomach has normal a period of some hours of rest, and this period occurs at night. It is, therefore, best to wash out the organ in the morning before breakfast. For diagnostic purposes, on the other hand, the evening is the most suitable time.

*The employment of hydrochloric acid and pepsin* is indicated in those cases in which the gastric juice has been proved to be defective. In certain instances it is enough to prescribe hydrochloric acid, since the reduction of the formation of acid acts much more detrimentally than the diminution of pepsin. Frequently, however, the administration of acid does little good. This occurs in cases in which the absorption is at fault, or in which the transference of the chyme to the duodenum is interfered with. In most cases of chronic dyspepsia it is well to test the action of acid and pepsin, washing out the stomach from time to time so as to ascertain whether the prescription is aiding digestion or not.

*The employment of other remedies* is of very much less importance than the three lines of treatment already mentioned. The use of bismuth, nitrate of silver, &c., Leube utterly condemns, nor has he seen any benefit follow the employment of quassia. He has, however, found the appetite increase, and the digestion improve after the administration of Condurango bark, especially in cases of chronic dyspepsia and carcinoma of the stomach. The use of mineral waters is advisable, but the quantity must not be excessive nor the temperature high. Iron is generally badly borne, but is so important in many cases that it ought to be tried. It is best to begin with an iron mineral water, and then to pass on to stronger preparations.

J. Graham Brown.

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## *ORIGINAL ARTICLE.*

### SYPHILIS, BLOOD COUNTING, AND MERCURY.

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SINCE Gowers simplified and perfected the hæmocytometer, blood counting has become a substantial addition to our means of physical diagnosis. By it and the instruments previously in use a normal numerical standard has been ascertained; it has been shown also that the blood corpuscles increase and diminish within certain limits in relation to nutrition, work, &c., and to a much greater extent in health and disease, and the effect of remedies has been noted.

In syphilis, as soon as the period of incubation is finished and the primary lesion established, among a set of symptoms which appear anæmia is perhaps the most constant. The red corpuscles are greatly lessened in number, while the white corpuscles and the albumen are largely increased.

Organic analysis and microscopic research having hitherto failed to enlighten us regarding the specific origin or cause of this disease, we are obliged to fall back upon clinical experience and enlightened empiricism for guidance in treatment. It is extremely problematical, if it were definitely proved that syphilis was due to the presence of the bacterium of Klebs, or the degenerate white cell of Otis, or to a colourless, structureless form of albumen endowed with catylitic attributes, whether our therapeutic powers over the progress of the disease would be thereby much increased.

It was no unimportant discovery at the beginning of the nineteenth century that syphilis was a self-limiting malady, which sometimes terminated favourably without medication—that in fact it bore the closest analogy to the infectious specific fevers, in being due to the presence of a special poison, although not a volatile one; which required, like them, a period to develop itself or incubate, exhibited a particular form of eruption with varied concomitant complications, and in a certain number of cases was followed by sequelæ. The very considerable duration of time necessary for the evolution of the phenomena of syphilis, no doubt delayed the detection of this close resemblance to the exanthemata, and the same fact may account for the remarkable varieties which age, sex, constitution, and habits may exercise in the manner and degree of their manifestation. Throughout the whole history of the disease, in the latest as well as in the almost traditional accounts, mercury, at first regarded as a sovereign remedy or curative agent, still maintains its reputation as the supreme modifier of the morbid action, lessening and shortening its course, diminishing the risk of future evil results, and at the same time directly strengthening the constitution of the patient. Of course this statement does not apply to every method in which mercury has been or is administered, and obviously in no degree to the foolishly lavish manner with which the drug has been given by ignorant and unscrupulous charlatans and uninformed physicians in past times, whereby the useful and beneficial action of the remedy has been greatly imperilled. Nor does this eulogium apply to all the methods at present in use, which may be summed up under three heads.

First, there is the plan of putting the patient through a short, sharp, brilliant course inducing salivation, in the vain hope of strangulating the disease—admittedly for the time weakening the patient. A second and more common plan is to administer mercury in the early stage of the disease; and also later during periods of eruption, or at stated intervals. And lastly, the method of giving mercury unremittingly for several months in minute doses, a plan whereby the patient is most effectually relieved from the evil effects of the disease, both in the early and late stage. In the majority of cases so treated, the patient, after the first outburst of the eruption, is unconscious of the existence of any malady, but rather is impressed with a lively sense of general well-being, which I shall try to show is due to this particular method of management of the disease, and has been styled "The Tonic Treatment of Syphilis by Mercury," first devised by Dr. Keyes, surgeon to the Belvidere Hospital, New York, and published by him in the *American Journal of Medical Sciences* in 1876.

All writers on materia medica have assigned to tonics the character of acting insensibly, gradually, and of imparting to the vitality of the organs a durable energy. But if, under the direct or indirect agency of a medicine, a prompt and marked increase in the number of the blood corpuscles takes place, that drug is especially deserving of the term Tonic. Dr. Keyes has made 500 experiments on this point, and has by carefully counting the blood corpuscles, successfully established the highly tonic qualities of mercury in early syphilis. He does not offer any explanation of the *modus operandi* of the drug on the unknown morbific material, nor on the indirect process by which the blood corpuscles are invariably increased in number; but gives a rather interesting account of the use he made of the observations and discoveries of other workers, in enabling him to arrive at a correct principle of administration of the drug, and also in attaining a proper estimate of its value, from a scientific as well as from a clinical point of view. Starting with the clinical conviction that continued small doses were beneficial, he looked about for any evidence corroborative of this opinion; and he found that Liègeois, in 1869, made a series of experiments in which he injected daily $\frac{1}{16}$th gr. bichloride of mercury in men and animals, and discovered that, contrary to the dicta of Ricord and Grassi, they all steadily increased in weight.

In 1874, Willbouchewitch published an account of many careful experiments, and the following conclusions:—

1. Small doses of mercury, when given to a syphilitic patient, increase the number of the red corpuscles at first, and slightly diminish the number of the white globules.

2. The long continued use of small doses of Hg. gives the same result which mercury, in large doses, yields in animals—viz., diminution of the red corpuscles, diarrhœa, &c.

3. It is consequently important to know when to discontinue treatment, and this can only be done by counting the blood corpuscles.

4. It is necessary, in treating syphilis, to give mercury until the red corpuscles begin to diminish in number, then to cease in order to allow them to increase; to return to mercury when the number of red cells again diminishes under the influence of syphilis,—and so on indefinitely.

These conclusions, Keyes thought, were invalidated by the fact that all these inmates of the Midi Hospital received too large doses, amounting to 10 centigrammes per diem. All lost flesh, ranging from 3 to 5 lbs. in a very few days, and the last countings took place at an average of fourteen days after leaving the hospital, when they had ceased taking the drug, were in better spirits, and improved hygienic conditions.

In the same year (1874), Professor Benett, a great sceptic in the curative power of drugs, and more especially of mercury, reported the result of a series of experiments performed by a committee of the British Medical Association, in order to determine the cholagogue properties of this drug. To all the dogs daily large doses of various forms of mercury were given, and in all these loss of weight was considerable; but in two which had abdominal fistulæ only ⅙th and ⅛th gr. cor. sub. were given respectively twice a-day, and both increased in weight. This latter fact, curiously enough, is not noted by the committee. Upon the data set forth above, Dr. Keyes undertook to investigate the effect of mercury upon the blood.

He began the inquiry by verifying in five healthy individuals, using Hayem & Nachet's instrument, the estimate which various physiologists had made of the average number of red blood corpuscles in a c.c.m., and found that 5,000,000 was practically correct.

(2.) In a second set of five cases suffering from early syphilis, and all treated with small doses of mercury, countings were made from time to time over a period of three months; and in *all* beginning with a standard *below* the average the increase was immediate, and the final countings in *every* case showed an amount *above* the average.

(3.) In order to exhibit the effect of *long-continued* use of small doses in syphilis, excluding all which had been treated also with iod. pot., there is a list of *three cases*, of six, eleven, and eighteen months' treatment; and in all the 5,000,000 standard was surpassed.

(4.) In this class, where mercury had been given in excess—*i.e.*, where ptyalism or diarrhœa existed—there was an average loss of 1,000,000.

(5.) Nine cases of syphilis under mixed treatment, taken at random, where one might naturally expcct cachectic conditions, from the prolonged existence of this disease; only two were below average.

(6.) Healthy individuals taking small doses increased their numbers. Keyes took the drug unknown to a friend who assisted in this inquiry, and in a fortnight he was told he had gained 700,000.

Believing these observations to be correct, and the deductions just, I have cordially adopted the tonic plan of treatment of syphilis, and in private practice have been able to verify in every respect the truth of Keyes' statements. The female Lock ward patients on dismissal never continue treatment, and accordingly they return, seeking relief from the symptoms of the disease which, except that it is aggravated by filth and dissipation, is allowed to develop itself in a natural manner until it causes some ghastly disfigurement or vital injury.

In order to eliminate doubtful cases, and to avoid interfering with the natural development of the disease, no treatment is pursued until an eruption on the skin or mucous patches on the throat appear in addition to the inguinal induration following a sore. The mouth is carefully examined, and all decayed teeth and tartar removed, as it is of the utmost importance to prevent ptyalism or stomatitis interfering with the regular administration of the specific. For the same reason in men smoking is prohibited. The digestive organs also are regulated, and the skin kept in a state of scrupulous cleanliness.

When the time for action arrives, a selection must be made from the numerous preparations of mercury—*e.g.*, the exceedingly convenient and beautifully made granules of the pro. iod., $\frac{1}{6}$th gr.; biniodide, $\frac{1}{16}$th gr., manufactured by the American druggists, are frequently selected, because the dosage is exact, the granules are of small bulk, easily carried, and easily taken. If a soluble form is chosen, the bichloride, $\frac{1}{16}$th gr., is given usually in combination with tinct. cinchon. Grey powder, with an equal part of dessicated sulphate of iron, is the composition of a pill usually prescribed in hospital, because of its cheapness and the absence of any tendency to excite diarrhœa.

It is well, after deciding the form of the remedy and the dose, to continue it steadily, as the principle of the treatment is to ascertain exactly what amount of mercury is required to do most harm to the disease, and at the same time most benefit to the patient, and this can only be learned by administering the drug as follows: If the $\frac{1}{16}$th gr. granule of the biniodide is given, one is taken thrice a-day after meals for three days. On the fourth day an additional granule is added, another on the seventh, and another on the tenth, and so on, an increase of one granule being made at the end of every third day, watching meanwhile carefully for the slightest sign of ptyalism. Should diarrhœa occur it is better not to increase the dose, but to simplify the food; and if that fail to arrest the irritation, 15 or 20 grains of bismuth may be given before each meal. Opium confuses our calculations, and should not be prescribed.

As soon as the gums become swollen, or the teeth tender on closing, the dose then in use is to be diminished at once to one-half, and this the tonic dose may be advantageously taken for many months continuously.

Should iritis, cephalalgia, or periostitis supervene while the patient is working up to the full dose, and it is important from the severity of the symptoms to effect complete therapeutic control of these, inunctions may be superadded at night, or Trousseau's *Coup sur Coup* plan adopted of giving $\frac{1}{16}$th gr. hyd. subchl. every two hours until relief or the state of the mouth makes it necessary to stop. This method should never be continued longer than twenty-four hours, as salivation is then apt to ensue.

Last year, with the help of Dr. Dyce Fraser and Mr. Lee, my clinical assistants, I made a series of blood counting observations upon a number of patients then under treatment. I shall give the notes of three cases which may be accepted as average examples of the result of our experience. All were young men under twenty-five years of age, who had undergone no treatment before coming under my care, and all while taking the medicine were allowed to continue their daily occupations. The countings were made by each of us independently, and the average struck before recording the result.

*1st Case*, A. B.—Primary sore on prepuce, which appeared nearly a month ago; base hard; no healing action. Inguinal glands indurated; throat congested; a smoker. Ordered biniodide.

| | | |
|---|---|---|
| 27th Jan. | Before treatment, | 4,200,000 |
| 3rd Feb. | One week, | 4,680,000 |
| 24th Feb. | One month, | 5,450,000 |

*2nd Case*, C. D.—Sore healed; early extensive papular rash with decided tendency to mucous placques; tubercular eruption in face; palate and throat symptoms severe; much addicted to smoking. Ordered biniod.

| | |
|---|---|
| 23rd Feb. | 4,825,000 |
| 6th March | 5,050,000 |
| 22nd March | 5,750,000 |

*3rd Case.*—Rash noticed about the beginning of January and the sore five weeks previously; slight erythema of fauces and pharynx. Since 24th January has taken pil. hyd. c. creta c. ferri sulph.; three to six daily.

| | |
|---|---|
| 6th March, | 5,000,000 |
| 23rd March, | 6,450,000 |

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# CORRESPONDENCE.

## CLINIQUE IN WARD 23 OF THE EDINBURGH ROYAL INFIRMARY.

To those who have not recently had an opportunity of seeing how the clinical teaching in the medical wards of the Royal Infirmary is conducted, the following short account may be of interest:—

The teaching in the University Clinical Wards is conducted in two separate ways; first, by cliniques held in the several wards by each professor, the students of the class of clinical medicine being for that purpose divided into sections; and secondly, by lectures in the Clinical Medicine Theatre. These lectures are delivered to the whole class by each of the five professors in turn, and cases which have been under observation in the wards are discussed individually and in relation to the general subject of medicine, in a way and with a completeness impossible by the bedside. At other times a symptom, or a group of symptoms is treated of, as these have been illustrated in the cases which the students have had an opportunity of examining in the wards, and thus an important link is supplied between the theory and the practice of medicine. As an example of this, may be mentioned the valuable lectures now being delivered by Professor Grainger Stewart on giddiness as a symptom, a great number of illustrative cases having recently occurred in his wards.

Wards 23 and 24 were opened on the 17th October last, and regular work commenced in them during the following week. The students who attend the clinique there usually number from 80 to 100; and they seat themselves in a wide semi-circle round the bed of the patient whose case is about to be considered, in such a way as to be able to appreciate any marked morbid phenomenon which may present itself.

After the report of the case has been read, the professor proceeds to discuss the significance of the various signs and symptoms, and such students as care to be questioned are called upon to express their views upon the particular point at issue. While this discussion is going on, each member of the class in turn has the opportunity of making out for himself the physical signs or other clinical points which the professor selects as being noteworthy. In this the most scrupulous regard is paid to the condition of the patient; no examination being permitted when there is any risk of harm resulting. The pros and cons of the case are thus discussed in a thoroughly practical manner, as regards etiology, diagnosis, prognosis, and treatment. At the conclusion of the clinique, the clerks of particular cases which have been fully considered on previous occasions, are called upon to state the progress which the patients under their charge have made; and thus the students generally are enabled to complete the notes they may have already taken.

A practical advance has been made in the method of recording morbid conditions implicating the thoracic and abdominal viscera, by the introduction of a method devised by Dr. Robert Robertson, of the Royal Hospital for Consumption, Ventnor. This consists in printing in the case-book, by means of an india-rubber stamp, an outline diagram of the chest-wall or surface of the abdomen, on which the position of tumours or of dulness may be readily and clearly marked. Two such stamps are required, one for the anterior and one for the posterior aspect of the trunk. By pressing the stamp upon an inked pad enough ink is retained to give a sharp and defined impression when the stamp is pressed upon the page of the student's note-book.

Among the numerous cases which have been under treatment in Ward 23, since it was opened for the winter in October, one or two may be mentioned which, while of no rarity, possess certain points of interest. One of these was the case of a man who was admitted suffering from well-marked symptoms of acute inflammatory Bright's disease. There was present a considerable amount of anasarca, along with some ascites and hydrothorax. The urine, which did not exceed thirty ounces in the twenty-four hours, contained a large quantity of albumen (one-third, according to rough estimation in a test-tube), along with hyaline, granular, and fatty tube-casts and some blood. He was at once placed upon the blandest diet, and was given a non-irritating diuretic mixture of infusion and tincture of digitalis. Under this treatment he rapidly improved, the urine and urea increasing in quantity, and the unfavourable symptoms disappearing. After a time, however, the pulse became tense, and the digitalis was in consequence stopped, a mixture containing squill and the spirit of nitrous ether being substituted. The urine still continued to increase steadily in amount, until a fortnight after his admission, when it had reached 154 ounces, containing 480 grains of urea. From this time, however, it again diminished, until it reached an average quantity, the urea remaining at about 400 grains per diem. This patient was dismissed on the 16th of November, when the urine showed only the slightest trace of albumen. He is now in good health, and has resumed his occupation.

Two cases of intestinal obstruction also present certain points of interest. In the first the symptoms were very acute, the patient having been suddenly seized with severe abdominal pain and vomiting while pressing a tool firmly against the left side of the epigastrium. When admitted he was found to suffer from severe spasmodic pain over the left side of the abdomen. Purgatives and enemata having failed to produce any action of the bowels, it was resolved to try the effect of the Faradic current. The poles were placed on either side of the abdomen, and the current allowed to pass for fifteen minutes. This method of treatment was repeated every three hours. After the first application great relief of the pain was experienced, and a dose of castor oil having been administered three hours subsequently, an evacuation of the bowels was at length obtained. The obstruction then ceased, but a degree of localised peritonitis still remains. In the second case, the obstruction was caused by the pressure of a tumour upon the rectum, and as no ordinary method of treatment seemed to be of benefit, surgical aid was called in, and Professor Annandale performed colotomy. The operation was successful at the time, and the patient is now progressing favourably.

THEO. STACEY WILSON,
*Resident Physician.*

# *REPORT OF SOCIETY.*

## THE MEDICO-CHIRURGICAL SOCIETY.

THE Medico-Chirurgical Society held its second meeting of the current session on the evening of Wednesday, 5th December, in the Hall of the Society of Arts, 117 George Street. After the reading of the minutes of the previous meeting, Dr. George W. Balfour ceded the presidential chair to Dr. Henry D. Littlejohn, the newly-elected President of the Society. On assuming the chair, Dr. Littlejohn, in a few happy and well-chosen words, moved that the thanks of the Society should be given to the retiring President. One of the pleasures he had, Dr. Littlejohn said, amid the applause of the members, in taking the chair, was that he succeeded his old friend Dr. Balfour, who was one of their most distinguished and esteemed members, and who had always put upon pathological data those lessons in practical medicine with which his name was so intimately associated. The business before the meeting was of an interesting description, and was not all disposed of, the hour for adjournment having come before the original papers of Dr. MacBride "On a Rare Form of Laryngeal Neurosis," and that of Dr. W. Craig on the "Case of Malformation in a Male Child," to which he called attention at last meeting, could be proceeded with.

The patients exhibited to the Society, in the first place, included—(1) one brought forward by Dr. J. Jamieson as "illustrating the good effects of Drainage in cases of Empyema." This patient was a shoemaker, in whose case it had been thought desirable to draw off fluid, by means of the aspirator, from the posterior aspect of the chest, the fluid drawn in the first instance being simply serous, and in the second instance, about a fortnight after the first aspiration, somewhat turbid. Afterwards, in consequence of urgent symptoms of empyema, it was resolved to make openings both anteriorly and posteriorly and insert a drainage-tube. This was done, and the cavity washed out afterwards with warm water and a little of Condy's fluid. In about five weeks he was discharged, and, with the exception of a cold which he afterwards caught in the North, and for which he was treated in the Aberdeen Infirmary for a few weeks, he did well, and he had now resumed work. The next case (2) was that of a woman, exhibited by Dr. Shand, who had been brought to him for treatment of a so-called boil, but which, from its situation, he at once suspected and afterwards ascertained to be a simple salivary fistula. He searched for and found the duct with the probe, and the condition was cured in about six weeks by the simple plan of collodionising the external opening. There was no calculus present. Among the pathological specimens exhibited were (1) "The Parts excised in a case of Nephrectomy," by Dr. John Duncan. The case Dr. Duncan described to be, so far as the specimen was concerned, an ordinary one of pyonephrosis, which had been sent to him by Dr. Angus Macdonald. The operation consisted of an incision in the middle line, and, after having divided the peritoneum, and stripped the pyonephrosis from the surrounding textures, he tied the renal vessels with silk, putting a double ligature on the ureter pretty low down, dividing the ureter between the ligatured points, and touching the orifice of the part left in the body with a strong solution of chloride of zinc. Unfortunately, after the case had been practically cured of the pyonephrosis, the patient sank from inflammation produced by the development of an abscess in the portion of the ureter left in the body. The case was important, as indicating the propriety of bringing the divided end of the ureter into the wound for after-treatment. Mr. A. G. Miller exhibited (2) "A Knee-joint removed by amputation for advanced disease." The patient was a young man of eighteen years, who had complained of disease when he was six years old, and in whom, after an apparent disappearance of the disease, it had revived in an aggravated form after a fall and fracture of the thigh four or five years ago. He had chosen to amputate as against excision of the joint, because, first, as now appeared from the specimen exhibited, both synovial membrane and cavity had disappeared, and there was complete disorganisation of the joint, and also because, from the patient's age, the epiphyseal line was still marked, and excision would have necessitated the removal of what remained of the epiphysis, and consequently prevented further growth of the limb, which was already nearly three inches shorter than the sound one. He amputated immediately above the knee, on 16th November, and the wound was now quite healed except at a small point where the drainage-tube was inserted. Dr. Blair Cunynghame exhibited, for Mr. Lawson Tait, F.R.C.S. Ed., Birmingham, (3) some specimens of "Diseases of Fallopian Tubes and Ovaries—Pyosalpinx." The specimens, he said, had interest from what was stated to be the state of most amusing incredulity exhibited as to the existence of the disease. Then (4) Dr. Kirk Duncanson exhibited a series of specimens of tumours and foreign bodies which he had removed from the ear of different patients. Of these, one was a molluscous tumour which he had removed in May last from the posterior wall of the external auditory meatus of a patient, from whom he had taken another tumour of the same character in November, 1875—on that occasion from the anterior wall of the meatus. In both cases, there had been extension of the meatus and absorption of neighbouring structures, with local paralysis from pressure on nerves. Removal was followed by the disappearance of pressure and other symptoms. In the case of foreign bodies—such as a plug of cotton wool, and of plugs of wax, also exhibited—there had been no extension of the meatus, though the cotton-wool plug must have been forty years in position. Another of the specimens related to an effusion of blood into the meatus, which had become organised and polypoidal in structure, and which bled considerably on removal. He also exhibited a piece of bone which the patient had coughed up, and believed to have swallowed four years ago, and to have had since in the lung; and a microscopic specimen of molluscan tumour prepared by Professor Hamilton.

A very interesting feature of the proceedings was contributed by Dr. Byrom Bramwell, in the shape of an "Exhibition of Microscopical Sections and Drawings" from the spinal cord. The first of these was from the cervical region, and showed a supposed congenital malformation of the grey matter, interesting simply as a curiosity, and not from any value which Dr. Bramwell was able to suggest it had—namely, a detached portion of the grey matter in the centre, between the two anterior horns. The second section showed a nerve cell with two nuclei—a condition of things, which, though described in the books, was extremely rare, and had not before been seen either by Dr. Tuke or himself. The third showed a remarkable multi-vacuolated condition of nerve cells. In a fourth section was shown the altered outline of the cord, brought about by pressure of a tumour, as well as the complete degeneration of the tissue of the cord itself. Finally, in five other sections of the cord, were presented some very good examples of the tissue changes seen in cases of myelitis—as the dilated vessels found in a very rapid case of myelitis in one of the Liverpool hospitals; and the dilated vessels, stuffed with blood corpuscles, the extravasation of leucocytes into the surrounding tissue, found in another case. There was also shown the changes seen in the white matter of the cord—the hypertrophy of the axis-cylinder processes, and the inflammatory changes in the medulla in a man who was recently under the care of Professor Annandale in the Infirmary, and who had a second attack of hemiplegia after being cut for stone. In this case, which was of great interest surgically, and which he believed the Professor intended to publish, Dr. Hewetson, the house-surgeon, had, previously to the man's death, told him (Dr. Bramwell) he suspected the lesion would be found in the medulla, on account of the symptoms. At the post-mortem it was only after very careful search that anything was found; but ultimately he did find in the medulla a well-marked though slight lesion following the course of the blood-vessels, evidently the result of an embolus, and showing beautifully this hypertrophy of the axis-cylinder processes, both in the longitudinal and transverse sections.

Of the original communications, the first read was one by Dr. William Craig, "On the Early Publications of the Medico-Chirurgical Society," and for this, on the motion of the President, the author received the thanks of the Society. Shortly after its establishment, Dr. Craig pointed out, the Society had begun to publish its transactions, and had issued three volumes—the first in 1824, and the third and last in 1829. These volumes contained very valuable communications, some of them by men whose names would be held in lasting remembrance, and it might prove interesting and profitable to the members of the Society to know more of these communications than they now did. Dr. Symington closed the evening's public business by reading an interesting "Note on the Fold of the Nates." The view given in the English books was, he said, the erroneous one that this fold corresponded to or was limited by the lower border of the gluteus maximus. He had for years taught the more correct view, which he now found was enunciated by Lusebka—namely, that the fold had nothing necessarily to do with the muscle, whose lower border it crossed nearly at right angles, but was essentially a fold of position, which was caused by prominence of the tuber ischii and the relaxation of the skin and superficial textures put upon the stretch in flexion of the leg upon the abdomen. Dr. Heron Watson and Mr. Miller offered some remarks upon the paper—Dr. Watson suggesting that the anatomical teaching on this point was never meant or received as exact, but as approximative merely, while Mr. Miller differed in this view, but thought the cause of the fold was a drawing in of the superficial textures, and not that suggested by Dr. Symington.

F. A. Macivet.

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## REVIEW.

**Grundriss der Arzneimittellehre.** (Elements of Materia Medica.) By Dr. Oswald Schmiedeberg, Professor of Pharmacology and Director of the Pharmacological Institute in the University of Strassburg. Leipzig: Vogel, 1883.

In no one of the various departments of medical science have greater advances been made within the past few years than in pharmacology, and to no single worker in that field do we owe so much as to Professor Schmiedeberg. He has not only himself laboured with immense assiduity to determine scientifically the action of drugs, but he has by his enthusiasm in the pursuit of truth drawn into the field a host of younger workers whose labours he has superintended and whose zeal he has stimulated. It thus comes that much of the recent pharmacological work is associated more or less closely with his name and bears the stamp of his mind, and we greet with great pleasure the collective statement of his views on the action of drugs which is contained in the volume now before us. The work is intended to be a pharmacological commentary upon the second edition of the German Pharmacopœa, and as such it is neither a book of receipts nor a compendium of therapeutics. It deals, not with the clinical side of the question, but with the purely experimental, and in this respect is of peculiar value, giving, as it does, the scientific basis of accurate experimentation on which the clinical use of remedies ought to be grounded. The extent of the field which must at the present day be covered by those who devote themselves to clinical work and by the experimental pharmacologist respectively, makes it impossible that these two branches of medical science should be treated of exhaustively in one book of moderate dimensions. But without an accurate knowledge of the facts established by modern scientific pharmacology the physician can only treat his patients empirically, and it is, therefore, that a work of this kind, which gives in a convenient form the main results of investigation, will be of such use in directing the proper employment of remedies.

In the introduction to this work, Professor Schmiedeberg defines pharmacology as the study of the changes which occur in the body as the result of the chemical action of drugs, irrespective of whether the substance is employed as a therapeutic agent or not. These changes sometimes consist in the same alterations in the structure of the tissues as arise when the agent is applied to them after death (as in the case of concentrated sulphuric acid), but at other times they represent a molecular change which is only fugitive, and which does not destroy the elements of the tissue, but only interferes with its function for a time, as, for example, the action of muscle and nerve poisons.

Passing from the introduction to the book itself, we find it to be divided into eight departments dealing with the following subjects:—(1) the nerve and muscle poisons; (2) drugs which cause changes at the point of application by reason of molecular peculiarities; (3) the action of water and saline solutions; (4) chemical caustic action by means of alkalis, acids, halogens, and oxidising substances; (5) combinations of the heavy metals and alkaline earths as nerve and muscle poisons and caustics; (6) the peculiar actions of aromatic substances; (7) digestive ferments and nutritive substances; (8) substances acting mechanically and physically. It will be seen from this list, and still more from a clear examination of the arrangement of the work, that this classification is a natural one, the drugs which most closely resemble each other in their actions being grouped together, and allows of ready amplification as more and more new facts are added to our knowledge in the science of pharmacology.

The first of these great classes is conveniently sub-divided into a number of groups, the different members of which are closely allied in action, such as the group of strychnine, of curara, of morphia, of alcohol and chloroform, of caffein, of camphor, and so on, to the number of twenty-two of such sub-divisions.

It will perhaps give the best idea of Professor Schmiedeberg's work if we summarise here the chief facts which he details with regard to one or two of these sub-divisions.

The group of camphor includes, besides that substance, many other bodies, such as borneol, camphorol, menthol, &c., as well as many etherial oils. All these substances act as stimulants to the central nervous system; in particular, the various centres in the medulla. In man and the higher animals, the symptoms of poisoning by members of this group consist in powerful and periodically recurring epileptic convulsions, which mask the action of the drug upon the respiratory and vaso-motor centres in the medulla. In curarised animals, an increase in the blood-pressure can be detected, owing to the action of the drug upon the vaso-motor centre. In frogs, a curara-like action takes place early, so as to prevent convulsions; and there is distinct stimulation of the action of the heart, which is sufficient to bring back the contractions of that organ after it has been paralysed with muscarin. The therapeutic indication of camphor is, therefore, to be found in its stimulating action upon the respiratory and vaso-motor centres, and upon the heart-muscle, which suffices to strengthen the breathing and circulation in conditions of collapse, and in the course of severe acute maladies. The employment of camphor for this purpose is to a certain extent interfered with by reason of the fact that it is little soluble in water, and hence that the strength and duration of its action cannot be very accurately regulated. The camphor is apparently very speedily transformed in the organism into various campho-glycuronic acids, and then becomes inert. The first appearances of the action of camphor—a feeling of warmth and increased rapidity of the pulse—occur in man after the administration of 0·03—0·06 gramme of that substance. Interference with the cerebral functions follows doses of 3-4 grammes. It is as yet uncertain whether musk ought to be included in this group. It produces the same effects upon the pulse and upon the brain as camphor.

Another group, which we may take as an example of Professor Schmiedeberg's treatment of the subject, is that of saponin. That active principle is found in senega root and in sarsaparilla, and is a glycoside very soluble in water. Saponin, when applied locally, produces inflammation—phlegmon in the subcutaneous tissues, gastro-enteritis in the stomach. Small doses produce in man symptoms which very closely resemble the stage of nausea of emetics—tickling in the throat, cough, and increased flow of mucus; and thus the drugs which contain saponin may be used as expectorants. This is chiefly the case as regards senega, which has this advantage over ipecacuan that, owing to the slow absorption and slow elimination of saponin, a slighter degree of expectorant action may be maintained for a prolonged period more readily with saponin than with emetics. On this account senega should have the preference as an expectorant over ipecacuan in those chronic cases in which that action is required to be maintained for weeks or months.

The last example of the nerve and muscle poisons to which we can here refer, and on which Professor Schmiedeberg speaks with special authority, is the group of digitalin, which includes digitalein, digitoxin scillain, helleborein, oleandrin, apocynin, and some other less well-known alcaloids, in addition to digitalin itself. These substances form a group characterised by this one action—viz., that they alter the condition of the elasticity of the heart without at first influencing its contractility. The first result of this action is an increase of the volume of the pulse, together with a prolongation of the diastolic phase. The quantity of blood which is driven into the aorta is increased even when the rate of the cardiac pulsations has become slowed. In this way the blood-pressure is raised. Somewhat larger doses act on the frog's heart so as to produce peculiar irregular so-called peristaltic movements of the ventricle, and in the higher animals such doses give rise to continuously high blood-pressure along with irregularity of the pulsations of the heart. Finally, there occurs in the frog the characteristic cessation of the ventricular pulsation in systole. The indications for the rational use of digitalis in therapeutics are fulfilled in cases where the symptoms arise from a defective blood-pressure and underfilling of the arteries, as in valvular disease of the heart. The depression of temperature which follows the action of digitalis is to be ascribed either to diminution of the cause of the fever—as, for example, the pneumonic exudation—or to an influence upon the tissue-change and heat formation. The last-named action is only met with after large doses, when paralysis of the heart is commencing, and is comparable to the collapse which in severe disorders follows paralysis of the heart or respiration. The use of members of the group of digitalis in pulmonary inflammation should only be attempted when it is desirable to force more blood into the arterial system, and thereby to aid the pulmonary circulation.

From these examples, it may be gathered how rich in detail this work is, and how valuable an aid it is fitted to prove to the practical physician. Just such a work as this was required, in which in comparatively small compass the theory of the action of drugs might be found, and the profession is largely indebted to Professor Schmiedeberg for this valuable contribution to medical literature, and, still more, for the careful scientific work on which so many of the facts it contains are founded. Experimental pharmacology is advancing at the present day with ever-increasing strides, and it must be the wish of every earnest physcian that the science of Therapeutics should, so far as possible, leave the old path of empiricism, and should advance hand and hand with the sister science, so that the use of drugs should have in every case an accurate and rational experimental basis. To this result Professor Schmiedeberg's work will, we hope, materially contribute.

J. Graham Brown.

# *REPORT ON MEDICINE.*

## *RECENT PAPERS.*

1. **Penzoldt.**—Beiträge zur Lehre von der Acetonuria und von verwandten Erscheinungen. (Contributions to the Knowledge of Acetonuria and its Symptoms.) *Deutsch. Arch. f. kl. Med.*, vol. xxxiv. p. 127.
2. **Leyden.**—Ein Fall von Bleivergiftung. (A Case of Lead Poisoning.) *Protokolle der Verhandl. des Vereins für innere Medicin*, Berlin, 1883.
3. **Crichton-Browne, J.** — The Pulmonary Pathology of General Paralysis. *Brain*, Pt. xxiii. 1883.
4. **Nothnagel.**—Zur Klinik der Darmkrankheiten. IV. Abtheilung, Das Verhältniss der Stuhlentleerungen beim Chronischen Katarrh. (On the Clinical Aspects of Diseases of the Intestines. Part IV. The Condition of Defæcation in Chronic Catarrh). *Zeitschrift f. kl. Med.*, vol. vii. p. 1.
5. **Straus, Roux, Thuillier, and Nocard.**—Exposé des Recherches sur le Choléra en Egypte. *Comptes rendus des Séances de la Société de Biologie*, 17th November, 1883.
6. **Russell.**—A Case of Hysterical Rapid Breathing in a Youth.—*Brain*, Pt. xxiii. November, 1883.

1. **Penzoldt on Acetonuria.**—In this interesting article Penzoldt endeavours to throw new light upon the vexed and obscure question of the appearance of aceton in the urine, and of the symptoms it occasions when present in the blood. The self-poisoning of the organism—the poisoning with substances which the diseased body itself produces—is a subject of great importance and interest at the present day. The reactions which have hitherto been used for detecting the presence of aceton are very unsatisfactory, and hence Penzoldt searched for a new test which might be more accurate and serviceable. This he found in the following reaction. A few crystals of ortho-nitro-benzaldehyde are heated with a little water to boiling, until complete solution is effected. After cooling, the fluid suspected to contain aceton is added, and the whole rendered alkaline with a few drops of caustic soda solution. If aceton be present, the fluid assumes a yellow and then a green tint, and finally indigo separates out. If there be merely a trace of aceton, the solution only becomes yellow, but on shaking it up with a little chloroform the latter becomes distinctly tinged with indigo. By means of this reaction, pure aceton can be detected in solution of 1 in 2000. In urine half a milligramme of that substance can be recognised. With this delicate test Penzoldt was able to recognise the presence of traces of aceton in normal urine when large quantities (twenty litres) were employed for analysis, and he thinks it may be safely concluded that aceton is a product of the normal tissue change, although its quantity is then extremely small. In disease, particularly in diabetes, the reaction is of course far more distinct.

In regard to the action of aceton on the organism, Penzoldt points out that the absence of symptoms of poisoning, which have been wanting in many experiments with aceton, is to be ascribed to the rapidity with which it is eliminated by the lungs—the amount present in the blood at any one time not being sufficient to cause poisoning. To prove this point, he took three rabbits of equal age and weight. To the first (A) was administered subcutaneously one gramme of pure aceton, and the animal was then placed under a tightly-closing bell-glass. The second (B) received no aceton, but was placed under a glass of the same capacity. The third (C) received the same dose of aceton as A, but was not shut up under glass. After ten minutes A became restless and dyspnœic, B was normal, and C somewhat confused. In five minutes more A was lying prostrate, with the vessels in the ear widely dilated, B showed almost no dyspnœa, and C was unsteady in its movements. After two-and-a-half hours A was almost dead, B dyspnœic but otherwise unaffected, and C was quite normal. The bell-glasses were then removed, and the rabbits allowed to recover. This experiment and other similar observations which Penzoldt here records show, as he thinks distinctly, that when the excretion of aceton is checked by interfering with the respiration, the administration of that substance is followed, in rabbits, by coma. The doses which are then required to produce coma, though not small, are certainly not excessively large, and the poisonous action, although it cannot be said to be very powerful, is quite distinct. Thus, from the experimental side, it is shown that diabetic coma may be the result of poisoning with aceton. We have only to suppose that, just as in kidney affections, the renal excretion may be suddenly and temporarily interfered with without any very apparent reason, so in cases of diabetic coma the excretion of volatile poisonous substances by the lungs has been for the time prevented. Penzoldt very carefully states, however, that it must not be supposed that he considers aceton as the only cause of diabetic coma. On the contrary, he thinks it most probable that many other known and unknown substances unite with aceton in producing this poisonous action,—just as in the case of uræmia, where urea is only one of the causes of that condition. Penzoldt does not indicate in what way he conceives the respiratory excretion to be interfered with in diabetic coma, but it seems to us highly probable that, in some cases at any rate, the fat emboli described by the late Professor Sanders and by Professor Hamilton, would account for the diminution of the respiratory function. If in such cases aceton is circulating in the blood, its excretion would at once be interfered with by the embolic closure of the pulmonary vessels, it would consequently accumulate in the blood, and coma would result. The importance of these observations of Penzoldt is very considerable. They explain, we believe in a satisfactory manner, the vexed question of diabetic coma, and place the argument upon a firm experimental basis.

2. **Leyden on Lead Poisoning.**—The patient on whom the observations here recorded were made was a painter, aged 39, suffering from lead poisoning, who fifteen years before had his first attack of lead colic, since which time that symptom had recurred on eight occasions, accompanied with paralysis of the extensors of the fore-arm. The present attack was ushered in with rheumatic pains in the knees and wrists, along with the usual colic. There was a distinct blue line on the gums, a hard, bounding pulse, albuminuria, typical lead paralysis, great colic, and pain in the joints and in the back of the head. He ultimately became comatose and died. On post-mortem examination the following facts were ascertained. The joints were apparently normal; the affected muscles thin, pale, and atrophied. On opening the cranial cavity, a considerable hæmorrhagic effusion was found to have taken place over the cerebral surface. The pia was infiltrated with blood. The kidneys were small, with a diminished cortex in which numerous small cysts were to be seen. Leyden comments on these facts as follows:—

1. *The Paralysis.*—The muscles and nerves of the right fore-arm showed marked changes, the former exhibiting that intense fibrous atrophy which

Leyden has formerly described. The trunk of the radial nerve, as well as the intramuscular branches, showed intense degenerative neuritis, with well-marked atrophy.

2. *The Joint Affection.*—The arthralgia of lead poisoning has been, since the days of Tanquerel des Planches, looked upon by many as a neurosis, while others—as, for example, Garrod—have regarded it merely as a manifestation of gout. This case goes to support the former view, for there was not found any effusion or deposit or any pathological condition whatever in connection with the affected joints.

3. *The Encephalopathy* consisted in severe occipital pain and deep coma. The symptoms resembled those of uræmia, only that there were no convulsions, and Leyden regards them as being of uræmic origin. The intra-meningeal hæmorrhage he looks upon as the result rather than as the cause of the attack.

4. *The Kidney Affection.*—The chief interest of the case centres round this point. Leyden has carefully examined four cases of this description, and in all the pathological appearances were similar. The kidneys were found to be in the condition of sclerotic atrophy, their substance being traversed by smaller or larger tracts of atrophic tissue, in which the urinary tubules were diminished in size or had disappeared, and the connective tissue was marked by rich nuclear proliferation. Great numbers of the malpighian capsules were atrophied, and the contained glomeruli had almost disappeared. The arterioles showed, in a most typical manner, hyaline degeneration—the arterio-capillary fibrosis of Gull and Sutton—but the larger branches were almost free. The pathological condition thus described was almost completely limited to the outer part of the cortex. There were also small cysts scattered throughout the renal substance. This atrophic condition of the kidneys was combined in all the cases Leyden has examined with hypertrophy of the left ventricle.

From these and other similar observations, Leyden comes to the conclusion that the renal atrophy is the direct consequence of the lead poisoning, and this on account of—

1. The frequent occurrence of renal cirrhosis in cases of lead poisoning.
2. The occurrence of the same in young patients in whom ordinary renal cirrhosis does not appear, and who show no sign of arterial sclerosis.
3. The special anatomical peculiarity, already referred to, by which only a small layer of the cortex is affected with the atrophic process, and the smaller arterioles show the hyaline degeneration, while the larger branches are almost unaffected.

Leyden is inclined to trace the origin of the renal process to the arterioles, and this all the more because a similar hyaline degeneration was found in the smaller branches in the muscles and nerves of the fore-arm.

3. **Crichton-Browne on the Pulmonary Pathology of General Paralysis.**—Among the secondary degenerations which occur in general paralysis not the least important are those which affect the lungs. In the great majority of cases of this disease which are examined after death, coarse changes in the pulmonary tissue are noticed. These have not formerly been subjected to careful study, and hence Dr. Crichton-Browne makes them the subject of this very interesting communication. The observations which he made were upon the bodies of one hundred patients—eighty males and twenty females—who died of that disease in the West Riding Asylum, within a period of three years. In sixteen of these cases the lungs presented no obvious pathological change, and were below the average weight, showing that in

these instances a certain degree of atrophy of the lung substance must have taken place. Dr. Crichton-Browne believes this to be analogous to the atrophy of old age, for senile changes are anticipated and exaggerated in general paralysis. It is not necessary, he thinks, to resort to any trophic theory to account for this atrophy, for the diminution of locomotion and vocalisation, and the weakness of the action of the heart met with in advanced cases, are sufficient to account for it. In the other cases in which a gross lesion was observed in the lungs, these organs considerably exceeded the average normal weight. The pleuræ very generally showed traces of old inflammatory action.

Of all the pathological changes which the lungs of general paralytics exhibit, congestion was found to be the most common. It was present in forty-nine cases out of a hundred, and was hypostatic in character, affecting the posterior and lower parts. It is to be accounted for by the low degree of muscular strength of such patients, the want of vigour of the respiration, and the unchanging attitude. It is possible also that there may be some degeneration of the ganglia surrounding the pulmonary vessels. Interference with the higher vaso-motor centres, which certainly does occur in general paralysis, may also account for this condition of digestion. The practical lesson which Dr. Crichton-Browne deduces from the presence of pulmonary congestion in such cases is that the patient ought to have his posture changed as frequently as possible, and that therefore there ought to be no attempt at mechanical restraint.

The presence of pneumonia was distinct in 13 per cent. of the cases. Dr. Crichton-Browne, while believing that this is to a certain extent a "vagus pneumonia," thinks that we are forced to assume that besides mechanical irritation some centric nervous influence is at work causing neuro-paralytic hyperæmia and a suspension of the normal trophic influences.

Phthisical consolidation or disintegration was observed in twenty-five cases out of the hundred analysed. In six of these only the remains of an old lesion appeared, but in the others the disease was of recent origin, and in an active state. The ages at which the phthisis occurred in these instances exceeded that at which hereditary consumption usually shows itself, and the patients, were, as a rule, vigorous and in good general health before the general paralysis set in. The phthisis in them must therefore be regarded as acquired, not inherited. That such patients are specially liable to chills is obvious, and the low state of their system favours in them the ingrafting of the phthisical process. Dr. Crichton-Browne traces this to contagion, pointing out that in asylums the mortality from phthisis is very high, and that it has in certain cases been reduced by better sanitation, and the adoption of such means as are calculated to lessen the risk of the dissemination of infectious matter. Phthisis is, he points out, more common in the infirmary wards of asylums than in other parts of such institutions, and as general paralytics are most usually relegated to these wards during the latter stages of the disease, they are placed in the most favourable circumstances for contracting that disease. Dr. Crichton-Browne suggests that cases of phthisis in asylums might be isolated in detached hospitals, so as to avoid the risks of contagion. This article must be looked upon as a most important and suggestive contribution to a subject previously but little known.

**4. Nothnagel on the Condition of Defæcation in Chronic Intestinal Catarrh.**—In considering this subject the author comes first to discuss the question of how it is that in health there is normally only one movement of the bowels. It is well known that the intestinal contents pass from the pylorus to the ilio-cœcal valves in three to four hours. Why does the fæculent matter not pass with equal rapidity through the large intestine? Nothnagel concludes that as this difference cannot be due to anatomical differences, nor to changes in the condition of the intestinal contents, it must result from slower action of the intestinal ganglia. The conditions of defæcation in chronic catarrh group themselves as follows:—

In one set of cases there is found obstinate constipation, and this Nothnagel believes to be the state peculiar to chronic catarrh of the large intestine, all other conditions being due to accidental complications. In a series of such cases, careful post-mortem examination showed the usual appearances of chronic catarrh, often with a degree of atrophy of the mucous membrane. The disorder was almost invariably limited to the large intestine. Clinically, the catarrh had either developed gradually without any very apparent cause, or it had followed an acute attack. The patients had died from various other maladies. The cause of the constipation in such cases is not to be sought in atrophy of the muscular fibres of the large intestine (Nothnagel often found that in severe cases there is no such atrophy present), but in a diminution of the automatic activity of the nervous apparatus, brought about by the chronic catarrhal process.

In a second set of such cases there occurs a daily action of the bowels, but the stools are soft and unformed. This alteration is sometimes due to intimate admixture of mucus (coming from the upper parts of the intestinal tract), sometimes to a greater proportion of water than usual (in cases of extensive atrophy of the large and small intestine), and at other times to admixture of fat. This last condition arises when the small intestine is chiefly attacked.

A third variety of symptoms, very frequently met with, consists in changes from constipation to diarrhœa. Nothnagel finds this change to occur in most cases with great regularity. This marked periodicity he traces to a peculiar condition of depression of the nervous apparatus of the intestine, which, after a day or two of rest (marked by constipation), wakes up as it were to new energy, and produces diarrhœa. It is comparable to Cheyne-Stokes breathing. But there is another kind of change, from constipation to diarrhœa, which is not brought about in this semi-physiological manner, but by reason of outside complications, and which consists in perfectly irregular periods of diarrhœa caused by acute exacerbations of the chronic process most frequently dependent upon some indiscretion of diet.

The fæces, in cases of idiopathic catarrh of the intestines, may be classified for diagnostic purposes as follows:—

1. When the large intestine is alone involved—usually a periodic variation from constipation to diarrhœa; only exceptionally one daily motion.
2. When the small intestine is alone affected—always constipation.
3. When the process involves both large and small intestines, there is continuous diarrhœa.
4. In catarrh of the large intestine, the constipation may be interrupted by diarrhœa, either with perfect periodicity or quite irregular, as has been already explained.

In addition to these forms of intestinal catarrh, others are occasionally met with, as, for example, cases in which an abnormal evacuation regularly follows some particular meal. In these, we must suppose that the mere entrance of food into the stomach is sufficient to excite the peristaltic action of the bowels. In other cases, again, the evacuation invariably occurs between night and early morning.

The latter part of this article is occupied with the consideration of the conditions which arise in cases of venous stasis in the intestines. All authors agree that venous hyperæmia (in valvular affections of the heart) of the intestinal mucous membrane gives rise to catarrh, and that this catarrh leads to constipation, and only exceptionally to diarrhœa. An analysis of a considerable number of such cases enabled Nothnagel to arrive at the following conclusions:—

1. So long as the valvular lesion is fully compensated for, defæcation remains normal.

2. When compensation becomes lost then constipation sets in, and towards the end of life all evacuation ceases. Occasionally, however, the opposite condition is observed—viz., more or less copious diarrhœa.

3. In a third set of cases where compensation is lost, diarrhœa alternates with natural evacuations.

Nothnagel believes that the constipation which is so often found in these cases of venous stasis, does not result from catarrh of the intestine, but from changes in the nervous mechanism caused by the congestion.

5. **Straus, Roux, Thuillier, and Nocard, on Cholera in Egypt.**—In this, which is the report of the French commission sent to Egypt to investigate the late cholera epidemic, we encounter certain observations which go to confirm Koch's report (*vide* No. 4 of this Journal), and certain others which are essentially different. The commission reached Egypt on the 15th of August, just when the epidemic was at its height, forty to fifty deaths occurring each day. The post-mortem examinations which the commission made were twenty-four in number, and in many of these instances the autopsy took place immediately after death. Passing over the more ordinary lesions observed in such cases, we come to the condition of the intestinal tract. This they found to contain large numbers of micro-organisms of very varying shape and character. The intestine itself, when sections were cut and stained with an aqueous solution of methyl-blue, showed an almost complete loss of its epithelial covering. The tubular glands, the inter-glandular connective tissue, and submucous tissue, contained great numbers of micro-organisms of varying form, some resembling those described by Koch, others being apparently of smaller size. These the commission look upon as only secondary, and act as the specific organism of cholera, and this for several reasons, the most weighty of which appears to be that they are not present in all cases, the most careful investigation having failed to detect them in three very severe cases, where death occurred from ten to twenty hours after the commencement of the symptoms.

The microscopical examination of the blood showed that here marked changes had taken place. The red corpuscles were diminished in number, the white numerous and full of bright granules. In the free intervals between the corpuscles, there were observed very small, pale elongated structures, constricted in the middle, and resembling the ferment of lactic acid; but much smaller, less highly refractive, and very difficult to distinguish. This organism was found to take on the aniline colours very badly, so that it was difficult to obtain demonstrative preparations. When tubes containing pure cholera blood were kept at a constant temperature of 38° C. for 24-48 hours, these organisms were found to have increased in number, and to have united together to form little chains. It was found, however, to be impossible to cultivate these forms in any of the fluids which are usually found to be suitable for such a purpose;

and all attempts to convey the disease to animals failed, even although very many species were experimented upon.

6. **Russell on a Case of Hysterical Rapid Breathing in a Youth.**—The subject of this observation was a youth aged nineteen, who was admitted to Bath Hospital, under the charge of Dr. Fox. He was thin, pale, and emaciated, and suffered from very peculiar attacks of dyspnœa. These attacks consisted of about twenty or thirty forced hissing inspirations, each successive inspiration being deeper than its immediate predecessor, the last one being apparently the acme of his inspiratory power. The series ended with a peculiar rough barking noise, but there was no expectoration. The paroxysms came at intervals of fifteen seconds, and in the intervals he breathed quietly and evenly. The attacks called into play all the extraordinary muscles of respiration, and he was forced to sit up in bed. There was occasionally slight choreic twitching of the muscles of the face. The patient improved when treated with bromide of potash, chloral, and atropia, but did not recover sufficiently to be able to do without that mixture, the paroxysms returning whenever the doses were withheld. This case is interesting in reference to an article by Riegel, of which an abstract has been already given in No. 5 of this Journal.

J. GRAHAM BROWN.

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# *REPORT ON NERVOUS AND MENTAL DISEASES.*

1. **Ball and Regis.** — LES FAMILLES DES ALIÉNÉS AU POINT DE VUE BIOLOGIQUES. (On the Health History of Neurotic Families.) *L'Encéphale*, No. 6, 1883.
2. **Cartaz.**—OBSERVATION DE COMMOTION CÉRÉBRALE CHEZ UN JEUNE ENFANT. (Case of Concussion of the Brain in a Child.) *Le Progrès Médical*, 3 Septembre, 1883.
3. **Stephanos.**—LA CHORÉOMANIE EPIDEMIQUE EN TURQIUE. (On a Recent Epidemic of the Dancing Mania.) *Le Progrès Médical*, 8 Septembre, 1883.
4. **Tarbell.**—ON THE HEIGHT, WEIGHT, AND GROWTH OF NORMAL AND FEEBLE-MINDED CHILDREN. *Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons.* Philadelphia, 1883.
5. **Wilbur.**—ON SOME OF THE ABNORMAL CHARACTERISTICS OF IDIOCY AND THE METHODS ADOPTED IN OBVIATING THEM. *Proceedings of the Association of Medical Officers of American Institutions for Idiotic and Feeble-Minded Persons.* Philadelphia, 1883.
6. **Bannister and Moyer.**—ON RESTRAINT AND SECLUSION IN AMERICAN INSTITUTIONS FOR THE INSANE. *Reprinted from the Journal of Nervous and Mental Disease*, vol. ix. No. 3, 1882.
7. **Campbell Clark.**—ON THE EDUCATION OF ASYLUM ATTENDANTS. *Medico-Psychological Association*, 16th November, 1883.

1. **Ball and Regis on the Health History of Neurotic Families.**—Drs. Ball and Regis have concluded their researches upon the biological characters of four hundred neurotic families compared with a hundred normal families. Some of their conclusions are not exactly what might have been expected. They find that longevity is greater in the ancestors of those affected by alcoholic excess or general paralysis; but when we descend to the families in which these morbid affections prevail, the vitality is not only less, but specific diseases are predominant. In normal families, the diseases which appear are variable and fairly distributed amongst the different organs; but in neurotic families there is a great preponderance of insanity, nervous diseases, cerebral affections, alcoholism, and pulmonary phthisis. In the families of general paralytics, as already said, there is a special liability to affections of the brain, and the hereditary transmission of disease is less marked. On the other hand, in those families where other forms of insanity are rife, cerebral and nervous affections, alcoholism and phthisis are commoner than usual. In the ancestors of those who suffer from epilepsy, the prevalent diseases are phthisis pulmonalis and alcoholism; in the descendants of epileptics there is much infantile mortality. Mental derangement does not appear with great frequency in epileptic families. Epilepsy itself is relatively rare in epileptic families. In fact, it may be said that, generally, epilepsy does not spring from epilepsy. In families given to alcoholic excess there is no neurotic inheritance, save drunkenness itself; but if alcoholism does not produce any diathesis it certainly creates one; and this diathesis, born of alcohol, is shown in the descendants by a double course, a marked liability to infantile cerebral affections, and a marked tendency to pulmonary phthisis. They found the mortality in the families of drunkards to be nearly eighty per cent.

In families where hysteria is common there is a special tendency to nervous diseases. Neurotic families constitute a distinct class in the population, especially characterised by a larger proportion of births and a larger proportion of deaths than is found in the general population.

2. **Cartaz on a Case of Concussion of the Brain in a Child.**—M. Cartaz gives a case of cerebral concussion, characterised by a passing hemiplegia, the rapid disappearance of the symptoms confirming the diagnosis. A child of three years of age fell with great force on the back of his head. Then followed complete hemiplegia of the right side, with partial anæsthesia, aphasia, and facial paralysis. M. Cartaz, on being called in to see the child, thought the prognosis unfavourable; but, after three days, the child began to recover. On the fourth day the power of motion was restored; from the fifth to the sixth day speech returned; and from the eighth to the ninth day the symptoms had totally disappeared. The patient's health since has been perfect. M. Cartaz believes the hemiplegia to have been the result of the cerebral disorder. He has only been able to find another case of the kind, recorded by Dr. Tigg, in the *Lancet*, six months ago. Some members of the Academy of Medicine were inclined to think that there might have been effusion following upon the contusion to the head, and that in a child, where molecular exchange is very active, eight days might be sufficient for the absorption of the abnormal deposits.

3. **Stephanos on an Epidemic of the Dancing Mania.**—Few who read Hecker's entertaining book on the epidemics of the Middle Ages expect to hear of a nervous epidemic such as he describes being repeated in our own day; but M. Clon Stephanos has lately called attention to a recent appearance of the

Edinburgh Clinical Journal.—Dec. 8, 1883.

dancing mania, or St. Vitus's dance, in Thrace, in some villages of the valley of Kior-Kaza, which signifies blind, or shut-up country. The inhabitants of these villages are plunged in deep ignorance and gross superstitions, one of which is the veneration, or rather the worship of St. Constantine. The festival of this saint, which is held in May, is accompanied by dancing and orgies, of which the principal part is taken by the Anastenaria, men and women who are regarded in the country as sacred beings. M. Stephanos shows that most of the symptoms of the dancing mania, as seen during the Middle Ages, and in the fifteenth century, were in our own day reproduced by the Anastenaria at Kior-Kaza. The disease appears in the hot season following the religious festivals, and is accompanied by dancing, principally amongst ignorant and superstitious men or women, more rarely in persons entirely exempt from superstition. Here, as at Aix-la-Chapelle (1374) and elsewhere, the persons who are subject to this affection are first seized by epileptiform covulsions with loss of consciousness and foaming at the mouth, after which they rise and are carried away by the impulse to dance. Among the Anastenaria, as in the epidemics of the Middle Ages, it was found that the rapidity of the saltatory or dancing movements were increased by the music, that there was a loss of consciousness during the height of the attack, and that the indulgence of dancing exhausted the morbid tendency and led to a cure. There were also hallucinations and irresistible violence of action or running, and a tendency to suicide, especially by drowning. Some phenomena observed in past ages were not produced in the recent epidemic; but these phenomena were not constant even in the Middle Ages.

4. **Tarbell on the Height and Weight of Idiots.**—Dr. Tarbell has weighed and measured all the children in the training-school at Boston, Massachusetts, comparing the result with the standard of normal children taken from Dr. Bowditch's tables made in the public schools of Boston. Dr. Tarbell gives a diagram, indicating the average yearly increase in height and weight, without mentioning the number of imbecile children measured (there are, I think, not more than one hundred pupils at the training-school). Dr. Tarbell remarks that the observations are altogether too few to warrant a safe generalisation, but as far as they go they indicate:

1. That idiotic and feeble-minded children, in our school, throughout their period of growth, are about two inches shorter, and nine pounds lighter, than normal children of the same age.
2. That the relative rate of growth of the two sexes of idiot children corresponds very nearly to that of the two sexes of normal children, and is subject to the same variations at the age of puberty; and,
3. That the period of puberty is about two years later in idiots than in normal children.

Dr. Tarbell does not allude to the measurements of Dr. Kind, of Langenhagen, which make the disparity in growth between normal children and idiots about double what has been found in America. Though the disparity is not so great in the table of heights given by Dr. Roberts in his "Manual of Anthropometry," the superiority of normal children to idiots in height is also more marked than in Dr. Tarbell's averages. Dr. Roberts' table was compiled from numerous measurements taken from idiots in Great Britain.

5. **Wilbur.—On some Abnormal Characteristics of Idiocy.**—In a previous paper, Dr. H. B. Wilbur showed that instinct was not a predominating principle with idiots, as supposed or assumed by some writers. In the paper now quoted, he treats of what he calls, after Hartley, "secondarily automatic

movements,"—that is, "actions which come to be performed, and habits without will, or even consciousness, though originally learned and practised with conscious interest." In some of the lowest forms of idiocy, observes Dr. Wilbur, these precautionary protective movements do not occur, showing that the general nervous system is deficient in conductive and ganglionic power. Of this he gives the following illustrations:—

"Dr. Howe, in his report for 1850, described the case of an adult idiot, who sometimes, in cramming food into his mouth, caught his fingers between his teeth, and, not knowing what pained him, used to howl and bite harder and harder, until he was severely hurt. It is not an infrequent circumstance to see idiots of low grade, when angry, beat themselves. You have all doubtless seen cases where flies settling on the face would excite no movement of the facial muscles, no apparent sense of uneasiness. In one of my early reports I described a case where the function of deglutition was ill performed. The eyeball could be touched without exciting the act of winking. The same girl had never walked or even sat up without support on all sides. She could not maintain her equilibrium under any circumstances, and when unsupported would always fall, obedient to the law of gravitation, without moving a muscle to save herself from injury. I have in other cases tried explosions of various sorts, where neither the flash nor the noise would produce winking. The reflex movement in this case being dependent upon sight and hearing, and these special senses being inactive, the necessary stimulus to the reflex movement was wanting.

"In some of the cases that have fallen under my observation, the responsive movement is not distinctly purposive, but rather a vague convulsive motion of all the limbs when one is irritated. It has seemed to me that, as a rule, the lower extremities have responded more promptly to irritation than the upper.

"In pulmonary affections, in our lowest class of cases, the cough is often wanting; in other words, the irritation of the mucous membrane which should produce a cough, as a reflex, fails to do so."

**6. Bannister and Meyer on Restraint and Seclusion in the United States.**—Doctors Bannister and Meyer have tried to collect some statistics bearing on the prevalence of restraint in the asylums of the United States, where it is much more resorted to than in Great Britain. It is still a living question in America whether restraint is not of therapeutic value. As the authors remark: "The practicability of almost absolute non-restraint does not demonstrate that such a course is altogether preferable, nor does the possible value of restraint carry with it the proof that it cannot be and never is abused." It is unlikely that in Great Britain any superintendent will practise restraint unless the considerations inducing him to resort to it are overpoweringly strong. No one will make himself a martyr in doubtful questions; hence such observations are interesting so far that they are not likely to be again made in this country. The authors have asked returns about restraint from fifty institutions, and got answers from twenty. It might be expected that those who had the best-looking statistics would be the readiest to answer; but, as far as they go, the returns collected by Doctors Bannister and Meyer show that neither the number of homicides nor of suicides are less frequent in asylums where restraint is much practised. Dr. Wilbur found that in 1875 suicides were four times as frequent in America as in English asylums. Since then the ratio of suicides in American asylums has diminished from one in 500 to one in 850; but then the ratio of suicides has also diminished in England "from one in about 2000 to one in 3333, or, if we admit only cases which occurred while in actual residence, so as to equalise the conditions in the two countries, it is reduced to one in 5000. In the first case the difference between the two is about the same as that reported by Dr. Wilbur in 1875, in the second case it is increased to nearly five to one in favour of England." It is needless to say that restraint is much more common in the United States than in England, the average daily percentage of patients restrained being over six per cent., and that of seclusion being nearly three per cent. of the whole number of patients. The authors estimate that seclusion is "*some twenty-eight or twenty-nine times as frequent on this side of the Atlantic as it is in England.*" To use the words of Doctors Bannister and Meyer, "Our disbelief in the value of any extensive use of restraint is based on the study of the results of treatment in English and American asylums, and some practical experience with both a relatively large amount and a minimum of restraint in the hospitals with which we have been connected. We have seen the gradual disuse of restraint accompanied by a great improvement in the conduct of the patients—less disorder, fewer assaults, and altogether less difficulty in the general management of the wards—than had previously been the case. This we attributed to the increased watchfulness made necessary, and the absence of the feeling of false security encouraged by the use of restraints, and also, in part, to the removal of a cause of irritation to the patients themselves."

The authors are not prepared "*to say that restraint is not sometimes necessary, or to abandon it entirely, for it is probable that there are cases in which it is a valuable adjunct in treatment which we are not certain can be replaced by anything else.*"

They think that "in some hysterical and impulsive or mischievous patients, who lack a sufficient stimulus to self-control, it may sometimes serve a useful purpose. We have twice seen a single application of the camisole permanently check destructive tendencies, and in one case a measure in principle very similar to restraint appeared to be the starting-point of a rapid recovery in a case of insanity of two years' duration."

"A study of the reports of the English Commissioners in Lunacy, however, suggests a doubt whether, in the competition to make a good appearance in the inspectors' minutes, the reasonable limits of non-restraint are not passed by some of these institutions. When a large asylum, containing hundreds of patients, reports no instance of either seclusion or restraint in over a year, it occurs to us to ask what, for example, is done with certain cases in which, at times, an excessive irritability is the most prominent symptom, and for which, considering it from a purely medical point of view, we have found short periods of seclusion most beneficial as well as agreeable to the patient, even if it is at first involuntary."

The authors wind up by stating their opinion:—"The reasonable inference from these facts is, that restraint is too largely employed in the United States, and that in this respect our management of the insane is behind that of other countries, especially Great Britain."

7. **Campbell Clark on the Education of Attendants in Asylums.**—At the branch meeting of the Medical Psychological Association, held at Edinburgh on the 16th November last, Dr. J. Campbell Clark read a paper on the "Education of the Attendants in Asylums for the Insane." Since his appointment as Superintendent to the Glasgow Pauper Asylum at Bothwell, Dr. Clark has shown much zeal and energy in teaching his attendants the nature of their duties. Two especial features in his system of education have been, the delivery of

lectures on the nature and treatment of insanity to the keepers, male and female, and stimulating them to write essays upon the different symptoms of mental derangement exhibited by the patients. This helps to make them interested in their work, and prompts them to study the character of the patients, and the course of their diseases. Being constantly with the patients, the attendants often make important observations which would otherwise be lost. I have had the pleasure of reading a series of essays upon hallucinations, by the attendants at Bothwell Asylum, containing remarks which would be gladly received by any physician writing upon the subject, and presenting a variety of standpoints and ways of looking at the subject which are very suggestive. Such attempts at improvement are apt to fade away either through want of perseverance on the part of the superintendent, exacting calls on his time in other directions, or in want of the hoped-for success in raising the knowledge of the attendants. The attendants themselves often leave, getting tired of a thankless and irksome duty; and there is a difficulty in obtaining promotion for those who have shown superior skill and diligence. Medical superintendents generally prefer training their own attendants to taking them from other asylums, thinking that experienced servants are more apt to bring with them new devices for escaping their work than greater skill and fidelity in performing it. Nevertheless, as the duty of a superintendent simply consists in prescribing different methods of conduct and treatment to the attendants, it is clear that it is of enormous importance to have a faithful, conscientious staff, who should not combine in neglecting behind his back what they are constrained to do under his eye. It would thus, no doubt, be of much importance if the attendants could be convinced, by the use of their own observation and judgment, that the hard duties and painful self-control sometimes required from them are clearly needful for the good of the patients under their charge, and not the theories of doctrinaires who load men with burdens grievous to be borne, which they do not touch with one of their fingers. The reading of Dr. Clark's paper, which will be published in the *Journal of Mental Science*, was followed by an animated discussion. Some superintendents, among others Dr. Clouston and Dr. Turnbull, were willing at once to commence to deliver lectures to their staffs, and the proposal to compose a manual of instructions for the use of the attendants in the asylums met with general approval, and will no doubt be carried out. It was determined to form the whole meeting into a committee to consider by what means the education of attendants in asylums could be most successfully prosecuted. It was also agreed to call upon absent members accustomed to attend the northern branch of the Association to give their advice and assistance in the work.

W. W. IRELAND.

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# THE EDINBURGH CLINICAL AND PATHOLOGICAL JOURNAL.

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## ORIGINAL ARTICLES.

### A NEW OPERATION FOR ECTROPION.

BY D. ARGYLL ROBERTSON, M.D.; F.R.C.S.E.; F.R.S.E.;

OPHTHALMIC SURGEON TO THE EDINBURGH ROYAL INFIRMARY, LECTURER ON OPHTHALMIC SURGERY IN THE UNIVERSITY OF EDINBURGH.

A COMMON variety of ectropion, and one in which it is often difficult to effect a complete cure, is that which results from long-continued chronic inflammation of the conjunctiva of the lower lid. As this condition is by no means confined to persons advanced in years, the disfigurement it produces is often a source of grave disquietude to the patient or the patient's relatives. The constant watering of the eye, always present in this condition, serves to confuse or blurr the patient's vision and necessitates the frequent application of the handkerchief; and this, by mechanically irritating the exposed conjunctiva, helps to aggravate the inflammation. The imperfect closure of the lids, too, exposes the eye to irritation from contact with particles of dust wafted in the air, which readily adhere to the moist exposed conjunctival surface.

The methods of treatment hitherto employed in this class of cases, while efficacious in some of the milder forms, have, in my hands, failed to effect a perfect restoration of the lid to its natural position in the more severe cases.

The slitting of the canaliculus—thus converting a closed duct or tube into an open groove or gutter—is of very great service in *diminishing* the watering of the eye; but, except in very slight cases, a certain amount of lachrymal secretion (generally somewhat excessive in the disease) still occupies the dependent sulcus that exists between the everted margin of the lid and the globe.

The long continued application of caustic or stimulant astringent substances to the surface of the thickened inflamed conjunctiva, may, in recent slight cases—by causing contraction of the vessels, or even cicatrisation in the conjunctiva—induce a return of the edge of the lid to its normal place.

Where this has not sufficed, I have occasionally used, with much advantage, Snellens' method of operating with a ligature; but have seldom succeeded in getting a perfect result.

The difficulty in getting the eyelid into proper position depends upon the abnormal curvature which is gradually acquired by the tarsal cartilage. With the view of restoring to the cartilage its correct curvature, I, in one or two cases, pared the edges of the upper and lower lids for a short distance in the centre, and by a suture kept the raw edges in contact till union occurred—thus employing prolonged contact of the lid with the globe as a means of remedying the distortion of the cartilage. But on dividing the uniting band, after the lapse of a few weeks, I found that the edge of the lid still had a tendency outwards, and only an improvement, not a complete cure, resulted from this procedure.

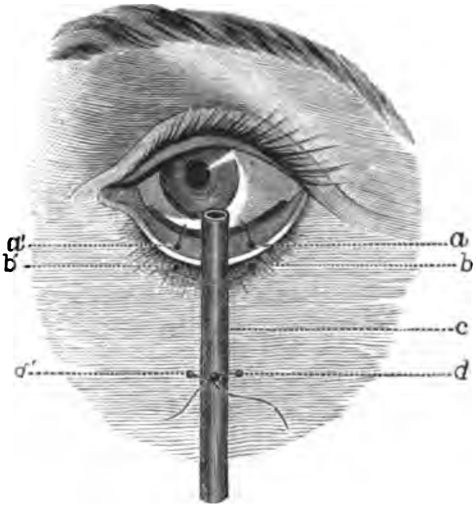
I was thus led to devise the following new method of operating, from which I have, as yet, obtained excellent results.

The materials required are—

*1st.* A piece of thin sheet-lead about 1 inch long and ¼ inch broad, rounded at its extremities, and with its cut margins smoothed. This piece of lead must be bent with the fingers to a curvature corresponding to that of the eyeball.

*2nd.* A waxed silk ligature about 15 inches long, to either extremity of which a long moderately curved needle is attached.

*3rd.* A piece of fine india-rubber tubing (the thickness of a fine drainage tube).



The operation is performed by perforating the whole thickness of the lid with one of the needles at a point (*b*) one line from its ciliary margin, and a quarter of an inch to the outer side of the centre of the lid. The needle having been drawn through (at *a*), is passed directly downwards over the conjunctival surface of the lid till it meets the fold of conjunctiva reflected from the lid on to the globe through which the needle is thrust—the point being directed slightly forwards,—and pushed steadily downwards under the skin of the cheek until a point (*d*) is reached about 1 inch or 1¼ inches below the edge of the lid, when the needle is caused to emerge, and the ligature is drawn through. The other needle is in like manner thrust through the edge of the lid at a corresponding point (*b′*) a quarter of an inch to the inner side of the middle of the lid, then passed over the conjunctival surface of the lid, through the oculo-palpebral fold of conjunctiva, and downwards under the skin till the point emerges at a spot (*d′*) a quarter of an inch outwards from the point of emergence of the first needle (*d*). The ligature is kept slack, or is slackened so as to permit of the piece of lead being introduced under the loops of the ligature that pass over the conjunctival surface of the lid, and of the piece of india-rubber tubing (*c*) being slipped under the loop at the edge of the lid (between *b* and *b′*). The free ends of the ligature are now drawn tight, and tied moderately tightly over a lower part of the india-rubber tube. The excess of india-rubber tube is cut off—about a quarter of an inch beyond the ligature—and the operation is complete.

The result of the procedure is that the edge of the lid is made to revolve inwards over the upper edge of the piece of lead, while the tarsal cartilage is caused to mould itself to the curve of the lead, and the eyelid at once occupies its normal position. A certain amount of redness and œdema of the lid follows the operation, and suppuration occurs in the track of the ligature; but as the india-rubber tube yields somewhat to the tension on the ligature, the irritation resulting is moderate, so that the apparatus need not be removed for five, six, or seven days, by which time the cartilage has become pretty well fixed in its new curvature. A slight relapse may occur when the apparatus is removed, but this is readily amenable to treatment by astringent applications.

The suppuration occurring in the tracks of the ligature leads to cicatricial formation, which appears to impart a degree of rigidity to the lid which helps to keep it in its new position.

As yet I have only operated on five eyelids, within the last eight weeks. The result in the first two eyelids operated on (a case of ectropion of seven years' standing) may be viewed as perfect. In one case—that of a young girl—I cannot give the eventual result, as the patient absconded within a day or two of the removal of the apparatus. When she left, the condition of the lid was much improved. The patient last operated on, a man above middle period of life, is at present under treatment in the Infirmary. The ectropion in the eyelid first operated on in him is quite cured; the apparatus has not yet been removed from the other lid.

The rapidity and completeness of the cure in the cases yet operated on is most satisfactory.

In the first operation, I used a thin piece of wood in place of the lead, but I find the lead—the use of which was suggested to me by my friend and assistant, Dr. Lundie—better adapted for the purpose.

# SOME LESSONS IN CONNECTION WITH THE PRACTICE OF SURGERY.

By Thomas Annandale,

SENIOR SURGEON TO THE ROYAL INFIRMARY, AND REGIUS PROFESSOR OF CLINICAL SURGERY IN THE UNIVERSITY OF EDINBURGH.

(*Continued from page* 155.)

## Surgical Dressing of Wounds.

If it were possible to place any wounded part in a perfectly pure atmosphere, and to keep such atmosphere pure until the wound was healed, special dressings would scarcely be required; and if the ordinary principles of treatment were attended to, it is probable that the healing process would progress and terminate satisfactorily with very little risk. That a healthy atmosphere influences the healthy progress of a wound is proved by the good results which are often obtained in country and private practice, under circumstances which are favourable as regards good air, and in large hospitals and other institutions in which antiseptics are employed. In our present knowledge, we cannot alone trust to the condition of the atmosphere, even under the most favourable conditions; and, therefore, some form of antiseptic dressing is required if we wish to do our duty to our patients, and save them in the most efficient manner from the risks which are connected more or less with the existence of a wounded surface or surfaces.

After many careful scientific experiments, and much clinical observation and practice, Mr. Lister came to the conclusion that the most certain antiseptic means of treating a recent wound was—in addition to the ordinary antiseptic precaution and dressings—the employment of an efficient spray of carbolic solution, which should play upon its whole surface whenever it was exposed to the air or to the contact of foreign substances likely to convey germs to it. His followers—among whom I have always ranked myself—adopted with confidence his suggestions and practice, and with every feeling of satisfaction as regards the results obtained; but to many of us in large practice there has always been a hope that some modification and simplification in the Listerian method might be introduced if such were found to be equally successful. The time has now come when I feel that, having considered the responsibility of such an opinion, I must express my belief that the use of the spray is not necessary in order to obtain the best results in surgical practice. I am aware that many surgeons have, before this, come to the same conclusions as regards the spray; but I am here expressing only my own views.

Having, since the introduction of the spray by Mr. Lister, carefully and conscientiously carried out the principles connected with its use, and having during the last five months employed the antiseptic treatment in all cases of wounds without once using the spray, I feel entitled to express this opinion. Among the major operations performed without the spray during the last few months, I find from my notes that there ave been 6 amputations of the thigh,* 1 of the leg, 3 of the upper arm, at the ankle. There have been 5 excisions of the knee, 2 of the hip, nd 3 of the wrist; 7 cases of osteotomy of the femur (three of them ouble), 13 excisions of the entire breast, and 9 excisions of tumours rom various parts of the body. Lastly, 2 cases of free incision into ealthy knee-joints—one for the removal of a loose cartilage, and the ther for the fixing of a displaced semi-lunar cartilage. These were all he cases of the kind treated during the time mentioned, and with the xception of one case of large tumour, all progressed quite as favourably s similar cases in which I had formerly used the spray. The cases of ompound fracture, of acute periosteal abscesses, of minor operations, nd of abscesses, have been equally successful, and there has been no ifficulty in keeping the wounds asceptic by means of the dressing resently to be described.†

If, then, my opinion in regard to the spray is correct, it will be cknowledged that one most important simplification of the Listerian ntiseptic treatment results, for most surgeons are agreed that the spray portion of this treatment is one of its most serious drawbacks in practice.

In giving up the use of the spray, I would not for a moment desire it to be supposed that I advocate any diminution in all other precautions of an asceptic nature, or that I wish to take away from Mr. Lister the credit of having founded the "antiseptic" treatment of wounds. I only desire to assist him and my fellow-surgeons in making its application more simple, and therefore more universal.

Various dressings of an antiseptic nature have been suggested, and are presently used in practice. Dressings of peat, tincture of iodine, rectified spirit, solution of corrosive sublimate, and other applications, all have their advocates; but I will now describe the dressings which I employ and consider most useful—

1. In recent wounds.
2. In healthy granulating wounds.
3. In unhealthy wounds.

*Recent Wounds.*—In cases of operation all the usual antiseptic precautions are to be carefully attended to. The part is to be thoroughly washed with watery carbolic solution (1 to 20), and all the instruments, sponges, and the hands of those who touch the wound or surrounding parts are to be freely dipped in a solution of 1 to 40. Then, immediately before using the knife, a solution of carbolic acid in glycerine (1 to 12),‡ as suggested by my colleague, Dr. Duncan, is to be smeared on the skin, and this same solution is, from time to time, to be dropped upon the surface of the wound, either from a bottle or syringe, during the operation, so that the whole wound is soaked with it. The vessels being secured, stitches of catgut introduced, and a drainage tube or tubes inserted in cases where a cavity exists, pads of salicylic wool smeared with the glycerine solution are applied, so as to exercise pressure and bring the deeper surfaces of the wound in contact. These pads having been secured in position by means of an antiseptic gauze bandage, more salicylic wool is adjusted over the pads and surrounding parts, and, in the case of wounds of the limbs, a splint is applied so as to keep the part completely at rest. If the temperature shows no signs of general disturbance, and the patient does not complain of any local trouble, the dressing is not disturbed until there are signs of discharge soaking through it. In cases of large wounds, it is usually necessary to dress the wound at the end of twenty-four hours after the operation; but, in smaller wounds, it is not necessary to interfere until the wound is healed, or nearly so; and in most large wounds, after the first dressing, it is three, four, or more days before any further change is required. At every change of dressing the usual antiseptic precautions are taken, and the glycerine solution dropped upon the wound as long as it is exposed.

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* I have not included among these three other cases of primary amputation of the thigh (one at the hip-joint), in which the patients died from shock within a few hours after the operation.

† Two or three of these operations were performed by Dr. Cotterill, Assistant-Surgeon to the Infirmary, but in all the same dressing was employed.

‡ A weaker solution (or 1 to 20) will probably suffice in many cases.

In recent accidental wounds the same principles are to be carried out, and the whole wound and parts around having been washed with 1 to 20 carbolic solution, the glycerine solution is to be applied, and the pads of salicylic wool adjusted.

*Healthy Granulating Wounds.*—There can, I think, be no doubt that the daily or bi-daily dressing of a healthy granulating wound interferes somewhat with the healing process. A healthy granulating wound will heal under the use of water-dressing, boracic acid, zinc, or other lotions and ointments of various kinds; but one disadvantage attends all these, more or less, and it is that the dressing must, as a rule, be changed once a-day. I have found that the salicylic wool and glycerine solution, with the addition of a piece of protective oil-silk placed next the wound, get rid of this disadvantage, and that granulating wounds treated in this way may, in many instances, be left undisturbed for several days, until the discharge begins to show itself through the dressing. The parts surrounding the wound having been well washed with watery solution of carbolic acid (1 to 20), a piece of protective oil-silk, cut to the size of the sore, is smeared with the glycerine solution, and placed over it, and then one or more layers of salicylic wool are applied, and secured by an antiseptic bandage.

*Unhealthy Wounds.*—When a wound is sloughing, ulcerating, or is unhealthy from any cause, I am of opinion that the best application is a warm charcoal poultice, combined with antiseptic irrigation, either by placing the part, when possible, in a bath of warmed carbolic watery solution (1 to 100 is usually strong enough), or by freely bathing and syringing the wound with the same solution several times a-day when the poultices are being changed. The poultices should consist of linseed meal or porridge, with two, three, or more tablespoonsful of powdered charcoal (according to the size of the poultice), well mixed with it. They should be made of good consistence, should be large enough to cover the whole wound and its edges, should be applied as warm as the patient can bear them, and directly (the surface being smeared with carbolic oil 1 to 40) to the wound, and should be changed every three or four hours.

## A CASE OF FRACTURE OF THE CERVICAL SPINE, UNDER PROFESSOR CHIENE'S CARE.

*Reported by* ARTHUR ROBINSON, M.B., C.M., *House Surgeon.*

M. T., a servant girl, aged 20 years, was admitted into Ward 14 of the Edinburgh Royal Infirmary, under Professor Chiene's care, on the 12th of October, 1883, with the following history:—

The previous day, at 12 o'clock noon, while cleaning a window, she lost her hold, and fell from a height of about 12 or 14 feet, to the ground. She felt no great pain; but being unable to rise, she was carried into the house, and during the movement complained of pain at the back of the neck.

After she was put into bed it was found, by Dr. Bleloch, that there was complete paralysis of both legs, and of the muscles of both arms, except the flexors of the fore-arms. There was also anæsthesia of the whole body below the level of the third pair of ribs, and inability to pass urine.

After admission to hospital, on examination, she was seen to be a very stout, heavy-looking girl. She had a cheerful expression, and said she had no pain while lying quite still. She stated that when she fell her right shoulder struck the ground first. She had not been unconscious, but felt quite unable to rise, a condition which still remained; the only pain she had was when her neck was moved. She could not feel her legs or body. There was a pricking sensation over the shoulders, and down the front of her arms.

She lay perfectly still in bed, head turned to right side; respiration 16 per minute; pulse full, regular, and fairly strong; temperature 97·6°F in the axilla. There were no marks or bruises over the body, neck, or shoulders. No displacement of the vertebræ could be made out, and no crepitus could be felt. She complained of pain, not very severe, on pressure over the fourth, fifth, sixth, and seventh cervical spines.

Sensation to touch and pain was normal over the left side of the face and neck, over the left shoulder and clavicle, and it continued down the inner side and front of the left arm and fore-arm to about three inches above the wrist; below this point there was complete anæsthesia. Sensation ceased on the back of the arm about one inch below the level of the insertion of the deltoid. On the right side there was normal sensation over the face and neck, over the shoulder, and down the front and inner side of the arm and fore-arm, to about two inches above the wrist, where it ceased. On the back of the right arm there was no sensation below the level of insertion of the deltoid. Over the body sensation ceased at the level of a line drawn round the chest, at the upper border of the third pair of costal cartilages. Above the level of the second costal cartilage sensation was perfectly normal; below that, to the upper border of the third costal cartilage, it was less acute. It was observed, the patient's eyes being covered, that if the area just below the line above mentioned was irritated no sensation was felt, but if the area above the line was first irritated sufficiently to cause pain, and if then immediately afterwards the area below was similarly stimulated, pain was felt.

There was no hyperæsthesia. The deep reflexes were completely abolished. On drawing the finger nail lightly over the skin, superficial to the abductor hallucis on both feet, the muscle at once contracted. No other reflexes were obtainable below the level of the third rib.

There was a feeling of pins and needles over the shoulders and down the front of both arms in the area where sensation remained. She had no sensation when her legs or the lower part of her body were moved, but she could tell when her arms were raised. She could not move her legs or feet, nor could she at this time move her arms. She could move her head from side to side and nod it.

Her breathing was entirely diaphragmatic; she could not throw her abdominal muscles into action. When asked to cough, she threw both sterno-mastoids into action, but failed to cough. There was no facial paralysis. The pupils were equal, moderately dilated and sensitive to light. The mind was perfectly clear.

### PROGRESS OF CASE.

*12th October.*—Patient lies quiet in bed, cheerful, and has complained of no pain, but has felt great thirst and has often asked for a drink. Her bowels have not been moved since the accident. A large soap and water enema was given; the greater part returned at once, the remainder came away slowly, bringing with it very little fæcal matter. She had no sensation when the enema was being injected. There was a tympanitic note all over the abdomen on percussion.

The urine was drawn off with a catheter soon after admission, only a few ounces being removed. At eight o'clock P.M., 30 ounces were drawn off, s.g. 1020, clear, light yellow colour, slightly acid, no albumen. Her temperature at this time was 98·4.°

*13th October.*—Slept fairly well during the night, waking at intervals to ask for a drink.

Face a little flushed in the morning; her temperature has risen to 100·4; respiration regular and slow; pulse 108; says she feels better. The urine had been drawn off in the early morning; it was removed four times each day, the quantity varying from 15 to 30 ounces. It was always clear, slightly acid, s.g. 1020, a slight deposit of mucus, no albumen, no blood. She takes a little milk food and often asks for iced milk or water to drink. She never drinks much at one time. In the afternoon she was noticed to be more flushed; her temperature was taken and found to be 105°; respiration, 24; pulse, 120. She complained of no pain. The pain on pressure over the cervical spines has not increased; she again said she felt better. Ten grains of sulphate of quinine were given, and an icebag was applied to the back of the head and spine. At 5 P.M. the temperature was 105·6°; pulse, 130; respiration, 24. At this time she could flex both her forearms on her arms, and continued able to do so until her death. At 6 P.M. the temperature had fallen to 104·8°, but at 7 P.M. it had risen again to 105·2°; pulse, 120; respiration, 26; there was a sound heard at the base of the heart somewhat like friction.

Nothing abnormal was found on examination of the lungs, except that the breath sounds were weak. The abdomen gave a tympanitic note on percussion. The pulse was rapid and full, but not strong. At 8.15 P.M., ten grains of sulphate of quinine were given with a table-spoonful of brandy. At 9 P.M., temperature, 104°; pulse, 120; respiration, 28. At this time she complained of buzzing in the ears and dizziness. At 9.20 P.M., temperature, 104°; pulse, 120; respiration, 24. The temperature now continued to fall, and on 14th October, at 8 o'clock A.M., it was 102·2°; but at 9 A.M., it had risen to 102·4°. At this time a blister, about the size of half-a-crown, was seen over the sacrum; it was surrounded by an erythematous margin. The skin over the right trochanter was flushed and slightly blue. The patient lay slightly on the right side. She was still cheerful, and made no complaints; but her face was flushed and hot. At 10 A.M. her temperature was 102·6°, at 11 A.M. 103°. At the ward visit to-day, Professor Chiene directed attention to the importance of the symptoms as a means to the exact localisation of the spinal lesion, and stated that in all probability a rupture of the cervical cord had taken place immediately below the origin of the seventh cervical nerve, and that the absence of crepitus and deformity posteriorly indicated that the bodies of the vertebræ were probably fractured; that because both sides of the body were similarly affected the lesion was a transverse one. A study of Gowers' plate, of the relation of the origin of the spinal nerves to the bodies of the vertebræ, indicated the probability that the body of the sixth cervical vertebra was principally injured. His reasons for arriving at this conclusion were, that both musculo-cutaneous nerves were affected; these are the only nerves in the brachial plexuses, with the exception of the external anterior thoracic nerves, the fibres of which take their origin from the fifth, sixth, and seventh cervical nerves. The subscapular, circumflex, and musculo-spiral nerves, take their origin from the fifth, sixth, seventh, and eighth cervical nerves; the median, from the fifth, sixth, seventh, eighth cervical, and first dorsal nerves; the ulnar, internal cutaneous, and internal anterior thoracic, from the eighth cervical and first dorsal ("Quain's Anatomy"). The lesion to the cord, therefore, was immediately below the origin of the seventh cervical nerve.

At 11.30 A.M.. patient's temperature was 102·8°; at 12·30 P.M. 103·4°. Ten grains of sulphate of quinine were administered. At 1 P.M., temperatre 103·8°. At 2.30 P.M., 104·4°; pulse, 98. At 3.15 P.M., 104·4°; at 4 P.M., 104·6°. At 5 P.M., 104·6°; ten grains of quinine were given with a dessert-spoonful of brandy, the pulse at this time being weak. At 6 P.M., temperature 104·8°; patient complained of buzzing in the ears and dizziness. At 7 P.M. the temperature had fallen to 104·2°. At 8 P.M. it was 103·8°. At this time patient's breathing was rapid and shallow; the action of the diaphragm seemed to be impeded, so the bed was tilted to take off the pressure of the intestines from the diaphragm. This appeared to relieve her for a time, but her face now became puffy and slightly livid, and the breathing was still very shallow; pulse fairly strong. She looked anxious, and often asked how she was getting on. At 10.30 P.M. the temperature was 102·8°. At 11 P.M. it was 103°, and it continued at 103° until 1 A.M. on the 15th, when it rose to 103·2°; but at 2 A.M. it fell again to 103°. Twice during the night she had short paroxysmal attacks of dyspnœa. When I left her at 2.30 A.M. on the 15th, she looked slightly livid; her breathing was rapid and shallow; she was in much the same state that she had been in since 7 P.M. on the 14th. At 2.45 A.M. I was summoned to the ward, but on arrival I found the patient dead. The nurse stated that the patient suddenly gasped for breath, turned very blue in the face, and then stopped breathing.

The temperature did not rise after death. The temperature throughout was taken with the same thermometer, always in the axilla.

## POST-MORTEM EXAMINATION.

Length, 61 inches; circumference round shoulders, 37½ inches, well nourished; pupil, equal and of medium size; eyes bright; rigidity slight; lividity slight; putrefaction, nil; two small commencing bed sores over middle of sacrum, above the cleft of the nates.

*Head.*—Skullcap, scalp, and membrane natural; convolutions slightly flattened; sulci somewhat effaced; surface of brain a little sticky; superior longitudinal sinus contained a black clot; sinuses at base and bones of base natural. Weight of brain, 2 lb. 11 oz. Organ quite natural. Not cut into. (No suspicion of internal disease.)

*Spine.*—Superficial tissues natural; no extravasation of blood; fracture of fifth cervical vertebra, which had not caused any displacement, but had broken the lamina completely across. (On further examination of the injured portion of the spine, after removal and dissection, it was found that the lamina of the fifth cervical vertebra was broken on the left side, and also the left transverse process was fractured. A vertical fissured fracture ran through the bodies of the fifth, sixth, and seventh vertebræ. The body of the sixth vertebra, which was the centre of the injury, was crushed and projected backwards into the spinal canal.)

Posterior surface of dura, both externally and internally, natural; between fractured bodies and external surface of dura-mater extravasation of blood, and some commencing inflammation (very slight).

Two small clots between internal surface of dura and outer surface of the spinal cord, at the junction of the lower cervical with the dorsal portion of the cord.

The lower cervical portion of the spinal cord posteriorly looked a little swollen, and was of a purple tint, as if from some internal effusion of blood. In front, the lower part of the cord, corresponding to the fifth, sixth, and seventh segments of the cord, was extensively crushed and softened, and presented the usual naked-eye evidence of acute myelitis. Dorsal region of cord softer than normal. The lumbar segments were of natural consistence. There was little or no evidence of meningitis at the seat of the lesion. Transverse sections of the cord in the dorsal and lumbar region showed no naked-eye evidence of disease.

## TWO CASES OF CHRONIC DIPHTHERIA.

### By Arthur Douglas Webster, M.D.

CASES of chronic diphtheria are somewhat rare. Mackenzie, in his work on diseases of the throat, mentions thirteen cases, eleven of which came under his own notice. Barthez describes one, and Isambert mentions the other.

Usually, if membrane exists longer than the fourth day, it is an extension of the primary deposit; if longer than the seventh day, it is a relapse of the disease. Either of these events is marked by a high temperature, similar to that at the first appearance of the morbid deposit. In relapse, the membrane has entirely disappeared by the tenth to the fourteenth day. Further relapse is very uncommon.

Chronic diphtheria does not refer to extension of the primary deposit or to relapse, but to successive formation over a surface attacked—of the morbid deposit. It is as though the normal function of the part affected had been supplanted by the diphtheritic process, or the system had not force to eliminate the diphtheritic poison; or that the virus had a new character. In Case I., the system was in a low state before diphtheria was contracted. The patient returned to his work before strength was restored. The action of the strong solution of nitrate of silver, together with the force necessary to remove the membrane, the bleeding surface beneath and the reproductive power of the surface, all point to the intimate relation between the membrane and the tissues beneath.

In Case II., the membrane was reproduced in the larynx, trachea, and larger bronchi; chiefly, however, in the trachea and larynx. Had the diphtheritic process extended to the finer bronchi, the character of the cough would have been similar to that of capillary bronchitis, instead of which, late in the disease, it was at rare intervals. Auscultation did not show signs of bronchitis beyond the largest tubes. So long as the tube in the trachea was free, the patient never suffered from dyspnœa in any degree, as would have been expected if the finer bronchi were lined with false membrane.

Case I.—J. S.; a joiner; aged 30; a stout, strong man, but who had suffered for a few months from pain and weakness in the lumbar region.

*15th June,* 1883.—He had been confined to bed for two days with muscular pains, sore throat, severe headache, and extreme weakness. The glands at the angles of the jaw were swollen, hard, and tender. Patches of thin whitish membrane covered part of the oral pharynx; and the mucous membrane around, of the whole throat, was swollen and deeply congested. The muscles of the neck were tender, and he had severe headache, which prevented sleep. Temperature 103°, pulse 100. Urine was slightly albuminous, and contained abundant urates. Medicines—a saline purgative; gr. iii. quinine every three hours; ℨi. bromide of potassium at night; iron and chlorate of potash; and a paint of boracic acid and glycerine, saturated solution. Ice was given to suck, and moist heat applied externally. During the following three days the membrane spread gradually over the whole pharynx. The membrane, in the order that it formed, peeled gradually off, leaving the surface beneath in a suppurating condition, having an offensive odour.

Temperature was febrile for several days.

*7th day.*—The membrane had entirely disappeared, leaving the whole pharynx in a peculiar, catarrhal condition. Strength was improving, and patient sat up part of each day.

*14th day.*—Patient was able to go out a little, and from this time continued irregularly at his work. He complained of the throat feeling dry. On examination it was dry and glazed. Considerable stringy matter was coughed up. During the fourth week he consulted me for continued dryness of the throat, and constant attempts to clear the throat of tough, stringy matter very difficult to get up. On examination the whole surface of the oral and nasal pharynx was seen to be covered with a thin greyish white membrane. The voice was nasal, but no paralysis existed. Gargles had no effect in removing the membrane. Solution of nitrate of silver (ʒi. to ℥i.) applied with a brush firmly was sufficient to peel the membrane gradually off. The surface beneath bled slightly at different points. The membrane reformed, but a similar procedure several days later seemed to put an end to it, as I afterwards learned that the patient was well. He had been taking a mixture of iron, quinine, and strychnia.

Case II.—J. R.; aged 2 years 8 months; showed signs of ordinary catarrh and sore throat, for a few days. Breathing became rough, and more and more difficult for twenty-four hours, at which time I was first called to see him (5 P.M., 27th August, 1883).

On examination the tonsils and pharynx were covered with patches of whitish membrane. There was increasing difficulty in breathing, which vomiting did not improve. Two hours later the patient was apathetic. Breath sounds had become entirely laryngeal, with increasingly long inspiration and short expiration. The lower ribs and sternum strongly retracted in each inspiration, and expanded suddenly in expiration. The lips were livid, the countenance pale and distressed. He struggled convulsively, at intervals, with extreme dyspnœa. Death from suffocation was imminent. Temperature 102°; pulse irregular. Dr. MacGillivray performed tracheotomy. The thyroid gland was large and bulged into the wound. There was considerable venous hæmorrhage. The child had stopped efforts of breathing for some seconds before the trachea was opened. The tube was at once inserted, and artificial respiration restored natural breathing; considerable mucus and membrane were coughed up, and the child slept, breathing quietly. The child's mother was instructed how to take out, and clean with a feather, the inner tube, when it was blocked by any secretion. Steam was directed from the kettle beneath a cover hung over the bed.

*2nd day.*—Temperature 103°; considerable coughing.

*3rd day.*—Temperature 103°; I removed the tube to clean.

*4th day.*—I removed the original double tube, and replaced it by one having a partial slit in the superior curve of the outer one. Membranous secretion was very abundant, so that the tube could not be left out. Temperature 102·8°, and continued febrile for several following days.

In the second week a rash covered the whole body, consisting of minute red isolated points, fading on pressure. It commenced on the chest, spread quickly, and continued for four days.

During four weeks, I frequently took out the outer tube in order to clean it, but required to return it as quickly as possible, as no air passed the natural way, and the abundant membranous secretion closed the artificial opening. The cough was violent and spasmodic.

The parents attended closely, and kept the inner tube free. Membrane of an exceedingly tenacious character, of whitish colour, and fibrous texture, constantly formed, and was expelled into the tube. After severe efforts to cough, blood tinged the membranous secretion. It was very difficult to get the little patient to take food, and it was only by persisting at all hours that sufficient was taken. During the night one or two eggs beaten in milk could usually be forced, but through the day it was most difficult. I inserted a double tube,—the outer one split, throughout both curves, at the fourth week,—in order that the expired air might pass more freely towards the natural passage and clear it, but had to return to the old one, on account of the abundant membranous secretion which adhered to its edges. The sides of the wound bulged into the tube. These together blocked the tube, and caused attacks of dyspnœa. The last of these attacks was very serious, cerebral symptoms following for a few days. The effort of coughing expelled air through the larynx, but none was drawn in, and no breathing yet took place when the double tube was removed, so it had to be at once returned.

Steam, lactic acid, lime water, tannin and glycerine, and inhalation of iodine, failed to reduce the amount or change the character of the membrane. Cough was unfrequent, but difficult and spasmodic. Poultices and sinapisms latterly had the best effect.

At the fifth week, the tube could be left out for a few minutes, breathing being carried on through the opening. Coughing through the natural passage was louder, and there was occasional inspiration—short and gasping. The membrane was now coughed up through the larynx, and became less in quantity.

*35th day.*—The tube was dispensed with. The little patient, after some rebellious struggles, breathed quietly through the natural way.

The wound healed in a week.

Iron and strychnia were taken for some weeks, and continued during convalescence.

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# *MEETING OF SOCIETY.*

## EDINBURGH OBSTETRICAL SOCIETY.

DEAR SIR,—The second meeting of the above Society for the present session was held last Wednesday evening, Dr. Macdonald, Vice-President, in the chair.

The interesting fare promised in the billet attracted a large diet of members, most of the leading Edinburgh fellows being present; and Dr. Bell, Glasgow, Leith Napier, Dunbar, and Lucas, Dalkeith, representing those at a distance. A number of valuable pathological specimens were shown; an ovary with distended Fallopian tube from a case of Salpingo-oophorectomy, by Dr. Angus Macdonald; and the placentæ from a case of triplets, by Professor Simpson, calling for special mention. As a fitting introduction to a discussion on Professor Freund's paper on "Extra-uterine Gestation" (read last summer) Dr. Angus Macdonald made a communication, "Two cases of Extra-uterine Gestation, one Operative." The latter, in which an operation was had resort to after five months' palliative treatment, presented many unique features. The patient was in a very weak condition, and had shown some symptoms of septicæmia prior to the operation. During the course of the liparotomy two fistulous openings in the bowel—one of considerable size had to be stitched up, while the patient's return to health was further complicated by a fæcal discharge from the abdominal wound, probably from a fistula which the operator had passed over unnoticed. The macerated fœtus had evidently been enclosed by intestinal adhesions, and had caused the fistulæ already alluded to. Dr. Macdonald, in conclusion, deprecated operative interference in cases where there was any reason to suspect—from diarrhœa—communication with the bowel, and paid a high compliment to Professor Freund's conclusions on the importance of diagnosing placental implantation on the intestinal wall in cases of extra-uterine gestation. Professor Simpson thanked Dr. Macdonald for his valuable paper, touched on the more important points in Dr. Freund's communication, and urged the desirability of more exact diagnosis, as he had no doubt that many of the so-called cases of hæmatocele were really due to rupture of the sac of an extra-uterine pregnancy. A lively discussion followed, Drs. Young, Hart, Barbour, and Leith Napier being the principal speakers. Altogether the Society is to be congratulated on the large attendance and interest shown in its meetings of the present session.

DAVID SMART.

## *REVIEW.*

**Injuries of the Spine and Spinal Cord without apparent mechanical lesion, and Nervous Shock, in their Surgical and Medico-Legal Aspects.** By HERBERT W. PAGE, M.A., M.C., &c. 374 pages. London: Churchill, 1883.

IT is impossible to characterise this work as other than a valuable addition to our literature. In it the whole subject of railway spine and analogous lesions receives a treatment more careful and extensive than has hitherto been attempted, and the information previously in our hands is collected, collated, and enriched by the fruits of the author's own large personal experience. The large mass of facts brought together is, for a mere hasty reader, almost too great, and such an one would prefer fewer of them, and more axiomatic statements of conclusions. But we incline to think that the author's system will best stand the test of time, and that his work will become a standard one with all who deal practically with these difficult cases, especially as witnesses in a court of law. The reasoning is always judicious, and the views held are clearly dictated by well-digested experience.

On one point alone we offer a criticism, which we are sure will be well received by the author, and remedied in the next edition of his work. This is that the experiments of Koch and Filehne, which throw so much light on concussion without visible lesion, have been overlooked, or at least not incorporated for the sake of those who are unaware of them. They have, in the writer's opinion, shed a great flood of light, where all was previously dark and ambiguous, on the whole subject of concussion, compression, and allied disturbances of the central nervous system.

ALEXANDER OGSTON.

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## REPORT ON SURGERY.

### RECENT PAPERS.

1. **Parinaud, Henri.**—LA KERATITE INTERSTITIELLE ET LA SYPHILIS HEREDITAIRE. (Interstitial Keratitis and Hereditary Syphilis.) *Archiv. Gen. de Med.*, November, 1883.
2. **Ozenne.**—DES GOMMES DE LA VERGE. (On Gummata of the Penis.) *Revue de Chir.*, August, 1883.
3. **Quincke.**—UEBER DAS VERHALTEN DES HARNS NACH GEBRAUCH VON COPAIVABALSAM. (On the Condition of the Urine after the Use of Copaiba.) *Archiv. für Experimentelle Pathologie und Pharmakologie*, vol. xvii. p. 278.
4. **Riedel.**—UEBER DIE RESULTATE DER WISMUTHBEHANDLUNG IM AACHENER STÄDTISCHEN HOSPITALE WÄHREND DER ERSTEN DREI MONATE DES JAHRES, 1883. (On the Results of Bismuth Treatment in the Aix City Hospital during the First Three Months of 1883.) *Langenbeck's Archives*, Band xxix. 1883.
5. **Heuck.**—ZUR STATISTIK UND OPERATIVEN BEHANDLUNG DER MASTDARMKREBSE. (On the General Features and Operative Treatment of Rectal Carcinomata.) *Langenkeck's Archives*, Band xxix., 1883.
6. **Nicaise.**—DE LA GREFFE CANCÉREUSE. (On Cancer Grafting.) *Revue de Chir.*, November, 1883.
7. **Symonds, J.**—ADDRESS ON CHRONIC INFLAMMATION OF BONE. *British Med. Journal*, 8th December, 1883.
8. **Gay, John.**—A DEMONSTRATION OF VEINS CONNECTED WITH THE HEPATIC SYSTEM. *Med. Times and Gazette*, 1st December, 1883.

1. **Parinaud on Interstitial Keratitis of Syphilis.**—The hereditary syphilitic origin of interstitial keratitis had not hitherto been accepted in France, as the disease does not commonly present itself during infancy. Its course and symptoms are so distinct from scrofulous keratitis, and have been found by Hutchinson so frequently associated with the existence of the "test teeth" and auricular troubles, that little doubt of its specific cause is met with in this country. But as the ear disturbances are often rather vague, Dr. Parinaud has endeavoured, in constructing a table of thirty-two examples of interstitial keratitis, to make use of the fact that syphilitic mothers in certain stages of the disease are peculiarly liable to miscarriages, and that many of their children die at a very early age, and has substituted this as alternative evidence. Accordingly in each case he has investigated this point, and has found that the 32 mothers have had 160 pregnancies, and 75 children only have lived. The mortality in individual examples was frightful, the patient in one case being the only survivor of twelve pregnancies.

He recognised what Hutchinson had previously correctly indicated, that the miscarriages and early deaths usually take place before the birth of the infant attacked with interstitial keratitis, whilst the later pregnancies have a more favourable result. From this it may be deduced that the keratitis is a sign that syphilis in the parents is becoming attenuated, for many of the children have not had infantile syphilis. This shows that syphilis does not cease to be hereditary when it ceases to be contagious; a diathesis or constitutional predisposition is transmitted which may remain for a long time latent. Parinaud has found the disease most common between the ages of seven and eighteen years, and one curiously exceptional case where both eyes were attacked at the early age of ten days. Hutchinson has never met with it under two years, but has seen it as late as twenty years.

It is rather remarkable that girls are much more liable to the disease than boys. Of Parinaud's cases, ten only were in male children. Although the sufferers from this affection are sometimes otherwise in good health, the majority show signs of physical and intellectual degeneration never to be mistaken for scrofulous, and in no single case did the observer meet with keratitis from that cause complicating the hereditary syphilitic. Iritis and choroiditis are frequent concomitants, and retinal affections somewhat rare.

Interstitial keratitis runs a slow course, tending rather to spontaneous cure than destruction of vision. It does not respond so quickly to specific treatment as iritis or gummata; but mercury, and especially iodide of potassium, exercise a beneficial influence in conjunction with atropine and a tonic hygiene.

P. H. Maclaren.

2. **Ozenne on Gummata of the Penis.**—As gummata of the penis are not very frequently met with, and as they may simulate other affections, M. Ozenne collected eight already published cases of this malady, and has given us the notes of a new one. He indicates, from these cases, in confirmation of Professor Fournier's views, four possible seats of the gummatous deposit, the mucous membrane of the glans and prepuce, the skin of the penis, the canal of the urethra, and the copora cavernosa.

When it occurs in the mucous membrane it is usually on the corona or in the groove behind it, often at the seat of the original chancre, probably because the tissues are there weakened. Wherever it begins the gumma follows the same course of development as on other parts of the body—*i.e.*, at first a solid tumour, afterwards an ulcer. The induration, at first circumscribed, may either remain so or it may spread diffusely. When treatment has not checked the mischief, ulceration begins. This may spread at times so much as to justify the term "cavernous gumma"; in other cases the sore has the usual characters of a tertiary ulcer. Under treatment the parts heal, although sometimes leaving cicatricial deformity—closure of the meatus, for instance; or, if the seat has been near the frenum, possible urethral fistula.

Usually subcutaneous gummata of the skin of the penis show nothing particularly noteworthy, although they occasionally leave adherent cicatrices which produce a curvature of the organ when it is erect.

A gumma of the urethra is not common. It may occur either by extension from the neighbourhood, or may begin directly in the canal. The latter, which is very rare, shows itself by a yellow purulent discharge as if from a gonorrhœa, and by an induration of the urethra, which transforms it into a tube with hard thick walls.

Little is known of the gummata of the corpus cavernosum. They are described as small portions of gummatous material about the size of a hazel or filbert nut, sharply circumscribed, and disseminated in a variable number in one or both corpora cavernosa. From their position they naturally occasion more trouble than gummata in other parts of the penis, causing various distortions when the organ is erect.

The diagnosis of a gumma of the penis is usually simple, although, according to its seat, it has been mistaken for one or other of the following: hard chancre, phagadenic chancre, epithelioma, or for chronic inflammatory induration which accompanies certain strictures of the urethra, whether or not complicated with fistula of the penis.

Gummata of the corpus cavernosum would probably leave inextensible cicatrices and permanent hardnesses. It would certainly be difficult to distinguish these from the hard deposits occurring in the fibrous envelope of the corpus cavernosum on the back of the penis, near the middle line, which appear without any syphilitic taint in patients subject to gout, or, according to M. Verneuil, to diabetes.

Although gummata of the penis have been known to disappear by local treatment alone, it is always better to employ specific remedies. The mixed treatment (5 c. grm. prot. iodide of mercury, with 1-2 grm. potass. iodide) seems to be most suitable for cases where the malady has at first either not been recognised or has been imperfectly treated.

3. **Quincke on the Reactions of Copaiva in the Urine.**—We are here furnished with tests for the presence of copaiva in the urine, as well as with some of the properties of the substance "copaiva red" which is then detected.

The results are different according as the ætherial oil or the resin are used. If a patient take from one to several grammes of copaiva oil daily, a small quantity of hydrochloric acid added to his urine turns it of a rosy red colour, becoming afterwards more purple. The colouring begins at once when the urine is warmed; or, if a concentrated solution of the acid be taken and added gradually, at the contact of the two fluids. With a one per cent. strength of acid the change begins in about fifteen minutes, increasing and becoming of a more violet shade in the next few hours, while a diffuse cloudiness collects as a flocculent deposit, at first colourless, afterwards dirty violet.

The substance in the urine after taking copaiva oil is probably an acid which forms salts easily soluble, colourless, and decomposable only by mineral acids. The free acid is coloured red, gives characteristic absorption bands, and is soluble in water, chloroform, alcohol, and amyl-alcohol.

When from one to five grammes of copaiva resin is taken, the addition of hydrochloric acid causes a more rapid formation of the cloudiness—soluble in alcohol—but the red colouring never appears. Dr. Quincke advocates copaiva resin as a diuretic, the resin and oil for catarrh of the urinary tract.

CHARLES W. CATHCART.

4. **Riedel on Bismuth as an Antiseptic.**—Following the method which Professor Kocher of Berne so strongly advocated in November, 1882, the author employed a solution of subnitrate of bismuth as an antiseptic in all his cases during the first three months of this year; and he now publishes the results of sixty-one major operations performed under this system. Kocher lays special stress on the advantages attained by treating wounds quite without drainage, and to achieve this he leaves them open for twenty-four hours, and then closes them with secondary sutures, thus closely following Liston's principle of coaptation, and in this way he attains excellent results.

Riedel, however, objects to this, as he has "neither time nor desire again to disturb the patient from ten to twenty hours after an operation." He therefore employs drainage of the usual kind; and thus repudiates Kocher's claim to the great advance attained by using a substance the astringency of which tends to minimise the serous discharge, and thus gets rid of the great obstacle to rapid union, and the easy channel for the entrance of septic organisms.

On the other hand, he appears to have been driven to his present position by observation of the deleterious remote effects of iodoform, "the absence of publications with regard to which," he says, "has cost many a man his life." What this darksome warning refers to does not more clearly transpire; but whatever it may mean, it does not appear to affect the practice of several leading surgeons, who constantly use iodoform in large quantities, and without evil consequences.

For subnitrate of bismuth is claimed complete absence of these poisonous qualities, and the presence of strong antiseptic properties, due to the slow liberation of nitric acid in the wound, which, "along with the natural resistance of the tissues, is enough to prevent the development of micrococci, or, at least, to render them harmless." The statistics show a low rate of mortality (9 per cent.), considering the severity of the operations undertaken, but the results as to the absence of putrefactive changes are not very satisfactory: of 25 cases where there was unbroken skin to deal with, 4 became septic after operation. As preventing erysipelas, the action of the antiseptic seems quite inadequate; for of 61 patients, 8 had erysipelas, which in one case proved fatal. This is referred to endemic causes; but whatever the cause, any hospital where more than one-eighth of the patients are thus attacked, is only in a condition to be closed, and thoroughly disinfected before cases are again admitted. In combination with others, this form of antiseptic may find a useful place in surgical practice, but experience seems to point to its being scarcely a safe one to use alone.

5. **Heuck on Cancer of the Rectum.**—In this paper Dr. Heuck has summarised the results of the treatment of forty-three cases of carcinoma of the rectum, in Professor Czerny's wards at Heidelberg, during the last six years. With so large a material at his disposal, his conclusions would necessarily carry great weight; but this is much enhanced by the care with which each case has been followed up to the present date, and each item of importance noted.

His statistics show that the disease is four times as common between the ages of forty and sixty as at any other period of equal duration; in this the figures of Billroth and Gurlt almost exactly agree; and from a tabulation of his results with theirs it appears that the male subject is more often attacked than the female, in the proportion of 1¼ to 1.

In 75 per cent. of the cases examined (36 in number), the histological structure was of the simple cylindrical-celled type; in but one case was true epithelioma found; and colloid degeneration was of very rare occurrence. These characteristics were found to have no definite relation to the clinical course of the disease, to the naked-eye appearance, or the consistence of the tumour, nor to the production of adhesions to surrounding parts; the last condition varied in direct proportion to the duration of the disease.

Under the clinical aspects are noted that the tumour was fixed and moveable in an equal proportion of cases, that polypoid projection into the rectum was present in seven cases, and that the condition of the inguinal glands is no criterion as to that of the pelvic glands, since the former may be affected in many different ways altogether apart from the latter.

Four cases were pronounced to be inoperable; 13 were susceptible only of scraping and cauterisation; and in 25 cases complete extirpation was adopted. In 16 of these a recurrence took place, and has proved fatal in 14 cases; 9 are still alive with no return of the disease, and of these 6 were operated on more than two years ago. Those who succumbed to recurrent growths lived on the average 11½ months after the operation was performed. In one case death occurred, very shortly after the operation, from septic peritonitis. The peritoneum was opened into in 11 cases; in 6 of these the wound was sewn up, and in 5 left unsewn, apparently without making any difference in the after course, in either case. One of three methods of operating was used, according to the size and position of the tumour in each case.

1. If the growth be at the margin of the anus, the whole, or a part, of the lowest portion of the gut is removed.
2. A tumour or ulcer may be removed from one of the rectal walls.
3. A circular piece of the gut higher up may be completely resected, and the divided ends brought together by sutures. Even where there is apparently quite healthy mucous membrane near the growth, it is safer to remove it; for, in the majority of cases, the recurrent growths were found to have arisen from such portions which had been left. Silk ligatures were used for securing bleeding points, as they were found easier to tie, in the funnel-shaped wound, than catgut ones. In any case the end of the gut must, if possible, be sewn to the outer skin surface, to diminish the risk of fæcal matter entering the freshly formed wound; if this occur at a later period, from the giving way of the stitches, the danger is already much lessened, from the wound having commenced to granulate.

Extra-rectal drainage should, if possible, be obtained; and the best dressing for the wound is an iodoform tampon, which must be changed frequently, and the wound irrigated with carbolic lotion.

The author's general conclusions are, that where possible extirpation should be carried out; and that where this cannot be done, it is best to leave the case entirely alone, for scraping and cauterisation produced worse results in his experience than purely expectant treatment; but for these cases he recommends the operation of colotomy. In one case only was the operation actually performed in which it was successful, and greatly relieved the patient; but it is difficult to determine whether in the numerous other similar cases it was not attempted, because symptoms were present which forbade the trial, or as a result of the very general prejudice amongst German surgeons against an operation which in this country has been as highly prized as it has been successful.

Arthur W. Hare.

6. **Nicaise on Cancer Grafting.**—It cannot be said that M. Nicaise throws any new light on this subject. After reiterating the view that cancer has not been shown to be transmissible by innoculation from man to lower animals, he refers to cases where it has been transferred from one part of a patient's body to another, and narrates an additional case of his own. The patient was an old woman with a sarcoma in the pelvis, in whom a secondary growth had occurred in the abdominal wall at the site of a puncture with a trochar. Microscopical examination showed the identity of the new growth with the original one.

7. **Symonds on Chronic Inflammation of Bone.**—Only one of the phenomena of inflammation of bone—*i.e.*, "expansion"—is taken up in this present paper, but this is done in such a way as to throw light on the rest of

the subject. The term "expansion" is objected to as misleading, since it indicates a mechanical process of "opening out" in inflamed bone, which Mr. Symonds gives us reason to believe does not actually take place. After showing that the idea of "expansion" is usually held, the writer offers an explanation of the cancellated character of some chronically inflamed bones which appears to be more satisfactory. All circumferential enlargement of bone is referred to periosteal new growth, and the often supposed increase in size of the epiphyseal ends of long bones in articular caries is denied. This latter statement rests on the examination by dissection of many bones which had been diagnosed at the bedside as enlarged, and on the following conditions likely to lead to the idea of enlargement:—(1) Wasting of the soft parts of the thigh; (2) thickening of the synovial membrane; (3) backward displacement and outward rotation of the tibia. What has taken place in a so-called "expanded" bone is that there has been a new growth from the periosteum of bone of a cancellated nature, while the old dense bone within has been altered by the enlargement through absorption of the arterial canals and by the "atrophy and remodelling of the compact bone." In support of these views references are made to specimens in Guy's and St. Bartholomew's Museums, and to plates published in the works of Sir James Paget and Mr. Stanley.

8. **Gay on Venous Communications.**—The views in this paper point to a freer communication between different parts of the venous system than is usually supposed to be the case, and are important in their possible bearings on affections of the venous system. Mr. Gay has made many experiments by injection, and showed some of the prepared specimens when he read his paper before the Medical Society of London.

His first statement is, "that if you inject a tributary vein, large or small, in any part of the body—as, for instance, of the internal mammary in the trunk or in the limbs—and in any direction, either backwards or centripetally, the injected fluid (if thin enough for permeation) will fill every vein throughout the body and extend into its finest ramifications. . . . I have put its proof to the test by a considerable number of experiments, and in no one instance have I failed, provided the animal was healthy."

"The next point is, that the injection, in taking this course, fills every interposing organised structure. It will traverse the lungs, liver, kidneys, and, as I have every reason to believe, the spleen, supra-renal capsules, the thyroid, and other parenchymatous structures."

"The third is, that it does not follow that because one large organ, such as the liver, or even other parts of the body, are thus injected, all or any parts or organs should be equally so filled."

Elsewhere Mr. Gay points out, that in the trunk and limbs collateral circulation takes place chiefly among the cutaneous or superficial veins. We may note that after excision of superficial veins of the leg for a varicose condition, the circulation seems to be carried on by the deeper veins.

CHARLES W. CATHCART.

# REPORT ON OPHTHALMOLOGY.

"TRANSACTIONS OF THE OPTHALMOLOGICAL SOCIETY," VOL. III., 1883.

1. **Rockliffe, W. C.**—EPITHELIAL GROWTH FROM AN EYELASH IN THE ANTERIOR CHAMBER, p. 26.

2. **Nettleship, E.**—On Certain Cases of Destructive Ophthalmitis, simulating Glioma, in Children, p. 36.
3. **Priestley Smith.**—On the Growth of the Crystalline Lens, p. 79.
4. **Edmunds, W., and Lawford, J. B.**—Examination of the Optic Nerves in Cases of Intracranial Disease, with Remarks on the Immediate Causation of Optic Neuritis, p. 138.
5. Discussion on Eye Symptoms in Diseases of the Spinal Cord, p. 190.
6. **Jackson, J. Hughlings.**—On Ocular Movements with Vertigo, produced by Pressure on a Diseased Ear, p. 261.
7. **Benson, A. H.**—A Case of Paralysis of some of the Ocular Muscles, &c., after Diphtheria, with some Remarks on the Pathology of the Affection, p. 265.

1. **Rockliffe on an Epithelial Growth.**—In August, 1883, a man, aged twenty-three, was wounded in the left lower eyelid and cornea by an iron staple. The wounds healed well. Six weeks later he sought advice on account of a dark body, apparently an eyelash, lying on the iris below the pupil, and slight pericorneal injection. An attempt was made to remove the eyelash, but failed on account of its being attached to the iris. The irritation however subsided, and nothing further was done. A year later he returned with the left eye acutely inflamed and a "white woolly-looking growth" over the extremity of the eyelash, which rapidly increased, and soon hid the latter altogether. There was also irritation in the right eye. An incision was made through the cornea in order to remove the growth by iridectomy; but it, with the eyelash attached, escaped with the aqueous humour. A portion of iris was removed, however, in consequence of an anterior synechia. The wound healed well, and the vision in both eyes much improved. The tumour was examined by Dr. Brailey, who says: "The mass consists of flattened epithelium cells." "It looks as if the cells of the root-sheath of the eyelash had proliferated in the anterior chamber." The occurrence of such a growth without firmer implantation is very remarkable.

2. **Nettleship or Ophthalmitis simulating Glioma.**—The author describes and discusses a number of these little-understood cases. Pathologically, they are of two types: (1) Irido-cyclitis, leading to exudation into vitreous and detachment of retina; (2) inflammation of vitreous and retina, without detachment. Clinically, they resemble glioma in presenting an abnormal reflex, usually yellowish; but differ in that the tension is diminished, and the iris usually altered in position or adherent. The author thinks they almost always depend on some infectious blood-disease, most often syphilis, also pyæmia, measles, whooping-cough, &c. More observations, especially of the onset of this disease, are very desirable for its elucidation.

3. **Priestley Smith on the Growth of the Crystalline Lens.**—This valuable paper is a record of a series of careful observations on lenses removed after death from persons whose ages ranged from 20 to 90. The weight of each lens was ascertained, the volume measured by an instrument specially made for the purpose, and the specific gravity deduced; in most cases the transverse diameter was also measured. Full details are given regarding 156 lenses, arranged according to the ages of the persons from whom they were taken. The volumes are also plotted in a chart against the ages, the cataractous lenses

being indicated by a different symbol: a method which gives an admirable view of this portion of the observations. A table of the averages of the measurements in each decade from 20 to 90 is given, calculated from the transparent lenses only. From this table it appears that the weight, volume, and diameter all increase throughout life, and very nearly in proportion to each other. The specific gravity, accordingly, while showing slight variations, does not exhibit any progressive change. The increase of weight of the lens with age is thus due to increase, not as previously supposed of density, but of size. This continuous growth of the lens till old age is probably to be explained by its closed capsule, which prevents the casting off of old cells. "With regard to both characters, the lens probably stands alone among all the organs of the body." This growth, the author thinks, may prove sufficient to explain the hypermetropia acquired in advanced life, as well as the senile shallowing of the anterior chamber. The cataractous lenses were found in general to be decidedly smaller and lighter than others at the same age, even when the change was at a very early stage. He confirms Becker's view that senile cataract is due to sclerosis, shrinking and consequent separation of the layers of lens fibres, and suggests that this stage is preceded by a diminished rate of growth.

4. **Edmunds and Lawford on the Immediate Causation of Optic Neuritis.**—The authors report twenty-two consecutive (not selected) cases of head injury and intracranial disease, in all but one of which a post-mortem was obtained. They found that in all cases where there was obvious menengitis, and in one where it was found microscopically, though not with the naked eye, optic neuritis was present; that it occurred in no case where the microscope showed absence of meningitis; that in recent optic neuritis the inflammation was always more intense towards the periphery than the centre of the nerve, never the opposite; that inflammation is always present between the outer and inner nerve-sheaths in cases of neuritis. They, therefore, support the view that this process is always dependent on inflammation of the meninges, and spreads along the nerve-sheaths; while they admit the difficulty of explaining at present on any theory some of the cases that have been described.

5. **Discussion on Eye Symptoms in Diseases of the Spinal Cord.**—This series of papers and speeches contains a mine of interesting cases and observations, chiefly regarding optic nerve atrophy and internal ocular paralysis. Gowers' opening address, and Bevan Lewis' paper on sixty cases of general paralysis of the insane, may be mentioned as of special value. But they are too extensive and complicated to admit of analysis here.

6. **Hughlings Jackson on Ocular Movements with Vertigo.**—A woman, aged forty-nine, had suffered from disease of the right ear since childhood. She had lately had auditory vertigo, both constant and paroxysmal. The right meatus was full of pus, and there was evidence of chronic bone disease. The hearing on that side was defective. On pressing back the tragus she felt "a falling to the left side," and the eyes moved first to the left, then rather more quickly back to the right. She stated that objects appeared to move to the left when the eyes turned in that direction. Under syringing and tonic doses of quinine the patient recovered. The author comments on the physiological interest of this eye-symptom as illustrating the connection between disease or injury of the semicircular canals and ocular movements, and its possible value in diagnosing and watching the progress of cases.

7. **Benson on Post-diphtheritic Paralysis.**—A well-marked case of this disease, terminating in recovery, is described, and the subject of its pathology discussed. The author concludes that the lesion must be central, that in the cases which recover it probably consists of minute capillary hæmorrhages.

R. A. Lundie.

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## *REPORT ON OTOLOGY.*

### *RECENT PAPERS.*

1. **Coyne.**—Recherches Anatomique et Pathologique sur la Région dite Flaccide de la Membrane du Tympan. (Anatomical and Pathological Researches concerning the Flaccid portion of the Drum-Membrane.) *Annales des Maladies de l'Oreille, du Larynx et des Organes connexes,* Septembre, 1883.
2. **Dubraule.**—De l'Articulation dans ses rapports avec l'Hygiène des Sourds Muets. (On Articulation in its relation to the Hygiene of Deaf Mutes.) *Annales des Maladies de l'Oreille, du Larynx et des Organes connexes,* Septembre, 1883.
3. **Weber.**—Liel Ueber den Einfluss Sexuellen Irritationen auf Affectionen des Gehörorgans. (On the Effects of Sexual Irritation on Affections of the Ear.) *Monatsschrift für Ohrenheilkunde,* Sept. 1883.
4. **Jacquemart.**—Rapport sur les Causes de la Surdi-Mutité et les moyens d'en diminuer la fréquence. (A Report on the Causes of Deaf-Mutism and the means of diminishing its frequency.) *Annales des Maladies de l'Oreille, du Larynx, &c.,* Nov. 1883.
5. **Wheeler, W. J.**—On Trephining in Mastoid and Tympanic Disease. *Transactions of the Academy of Medicine in Ireland,* 1883.
6. **Mackay.**—Observations upon Otorrhœa. *The American Journal of the Medical Sciences,* October, 1883.

1. **Coyne on Membrana Tympani.**—The author first gives a detailed description of the anatomy of the membrana flaccida, and then adduces arguments to prove that in those cases in which a perforation exists in this region, without pre-existing ear disease, the cause is to be sought in arrested development of the tympanic ring. He has made the interesting observation that the surface measurements of the membrana flaccida are universally proportionate to the age in human subjects. In the dog, the flaccid portion is very large, while in the ox it is small.

2. **Dubraule on Deaf Mutes.**—Dubraule confines his remarks principally to the advantages resulting from articulation to the respiratory system. There is, however, one paragraph—the opening sentence of the paper—which we cannot refrain from quoting: "Whoever has been willing to review the advantages of articulation and lip reading in the education of deaf mutes, has found them so decisive, that it is no longer permissible to refuse to those whom nature has disinherited, the means which convey to them, in their affliction, advantages at once so important and numerous." It is, indeed, much to be regretted that

in our own country so little has been done for those among the poor who are afflicted in this way. In most parts of Britain, we believe, asylums for the deaf and dumb exist; but in few—although, fortunately, the number is increasing—is it possible for the deaf mute, whose parents are not in affluent circumstances, to be instructed in speech and lip reading.

3. **Weber on Irritation of Sexual Organs in Ear Affections.**—The author calls attention to the fact that uterine disease is often accompanied by progressive deafness, which he believes to be due to tropho-neurosis. He, moreover, states that great benefit is often produced in such cases by the insertion of the electrode into the Eustachian tube, while the other pole is applied to the lower dorsal or upper lumbar vertebræ—the latter point to be found by experiment in each case. Unfortunately, the only case recorded in this connection is that of an hysterical lady who suffered much from tinnitus—especially during the menstrual period—which could only be relieved by the application of an ice-bag to the region of the left ovary. The remainder of the paper is devoted to a somewhat unsavoury subject; and a case of chronic suppuration of the middle ear in a boy, the course of which was unfavourably influenced by vicious habits, is recorded at considerable length.

4. **Jacquemart on Deaf-Mutism.**—The author, in a long paper full of quotations from French, German, English, and American authors, brings forward one interesting observation. It is a record of a case of deafness with resulting dumbness, treated successfully by means of the Eustachian catheter. Owing to the resistance offered by the patient, she had to be put under the influence of chloroform before the instrument could be passed. The case was evidently one of obstruction of the Eustachian tubes.

5. **Wheeler on Trephining in Mastoid and Tympanic Disease.**—In this paper Mr. Wheeler reviews the dangers of mastoid disease, and advises early operation as a means of averting a fatal issue. So far every surgeon will agree with him. But we must hesitate to give unqualified approval when we are told that it is almost essential to expose the dura-mater; and when, on the same page, we find it asserted that "good service will be done towards the patient by his attendant who advises operation even where no bone disease exists." It will be a new fact to most otologists that the membrana flaccida "is the most frequent seat of perforations." If Mr. Wheeler has found this view to be supported by personal observation of a large number of cases, these would form an interesting contribution to aural surgery, for, in the experience of most aurists, perforations of Schrapnell's membrane are comparatively rare, while those situated in other portions of the drum-head are remarkably common.

6. **Mackay on Otorrhœa.**—The author records a large number of cases of chronic suppuration of the middle ear treated by him. There is to the specialist nothing new in the paper. Dr. Mackay seems to recommend either the caustic treatment or packing the ear with boracic acid powder. The reviewer has found the best results from syringing the ear thrice daily with boracic lotion (warmed). The ear is then carefully dried by the patient with a wick of absorbent cotton-wool, and finally some inpalp powder of boracic acid insufflated by means of an instrument improvised from a piece of india-rubber tubing and a quill.

P. M'Bride.

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## ORIGINAL ARTICLES.

### NOTES OF A CLINICAL LECTURE ON A CASE OF INJURY TO THE CORTEX OF THE BRAIN.

WITH SYMPTOMS POINTING TO LOCALISED FUNCTION.*

BY JOHN CHIENE, M.D.,
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(*Reported by* A. W. HARE, M.B., House Surgeon.)

GENTLEMEN, within the last few years, as a result of Ferrier's discoveries, it has become possible to localise some of the functions of the brain with considerable precision in certain regions of the cerebral cortex.

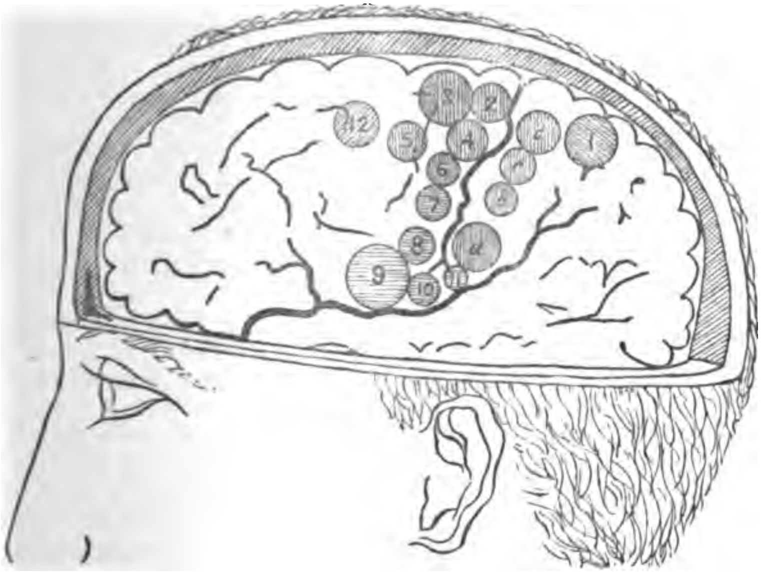

FIG. 1.

If you look at this diagram (Fig. 1.) which has been prepared to show the results of Ferrier's research, you will see a number of areas of the brain surface marked out, which have definite relations to the various fissures of the brain. Of these the fissure of Rolando is the most important, for around it are grouped the "motor centres" for the extremities, and the facial and lingual muscles of the opposite side of the body. The centres dominating neighbouring regions of the body have been marked with similar shading. Thus the areas *a*, *b*, *c*, and *d*, bounding the fissure of Rolando posteriorly, and 6 and 5 in front of the fissure, are those in functional connection with the upper extremity—*a*, *b*, *c*, and *d* being concerned in the movements of the fingers, hand, and wrist; 6, the centre for supination and pronation of the forearm; and 5, that for movement forwards of the upper extremity as a whole. Further, the areas 7, 8, 9, 10, and 11, indicated as possessing analogous functions, are the centres which supply motor power to the tongue and the muscles of expression grouped around the angle of the mouth. Other distinctly mapped out centres are: 1, that for movements of the opposite lower extremity; 12, the centre for movements of the eye and dilatation of the pupil; and 2, 3, 4 a centre for co-ordinated movements of the upper extremity, such as those of climbing and swimming.

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* A case of similar interest was published in the *Edinburgh Medical Journal* for May, 1882.

There has been, till recently, one missing link in the chain which unites the anatomical lesion with its resulting symptomatic phenomena; and that is, our inability accurately to determine the position of certain landmarks, and notably that of the fissure of Rolando, in their relations to external features of the head. This has, however, within the last few months been worked out satisfactorily, and the results of the research, which was conducted during the winter months by my present house-surgeon, are shortly to be published in one of the journals*; to these I shall subsequently refer.

The little patient, Henry M——, 3 years old, whom I now show you, was admitted on Sunday, the 13th of May, 1883, suffering from a compound fracture of the skull, occasioned by the fall of a heavy fragment of plate glass, from a height of ten feet, which struck him on the top of the head, and caused a deep wound, through which brain substance was forced out.

The following notes were taken on admission :—" On left side of head in region of parietal eminence, is a clean cut wound 1¾ inches long, running from before backwards, nearly parallel to, and about 1½ inches to the left of the mesial plane of the head. The examining finger comes in contact with a sharp-edged ridge of bone, running in the same direction as the scalp wound, but which can be felt by the probe to run forwards and slightly upwards ¾ of an inch beyond the anterior end of the skin wound. Above this edge of broken bone can be felt the depressed upper portion of the skull. Posteriorly the fracture appears to be coterminous with the scalp-wound, and at this point there is some fissuring of the bone."

Such was the injury so far as discernible on the admission of the case; and before proceeding to the symptoms of the case, let us attempt to ascertain the anatomical relation of this fracture to the fissure of

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* *Journal of Anatomy and Physiology* for January, 1884.

Rolando, by applying the results of the research already mentioned. This has been carefully worked out, with the following result:—"The line of this fracture crosses that of the fissure of Rolando almost exactly at right-angles, and at a distance of about 1¼ inches from its upper extremity; and of the 2½ inches of fracture which could be felt by the finger and the probe, about 1½ inches lie in front of the fissure, and 1 inch behind." This relation has been indicated in this diagram (Fig. 2), upon which also Ferrier's areas have been marked.

Let us now consider the symptoms which have been observed in the case up to the present time. I cannot do better than simply read to you the daily records of the case for the six days we have had it under observation, and we shall then discuss the probable significance of the symptoms:—

> "13*th May* (*evening*).—On admission, wound washed out with 1 to 20 carbolic lotion, a catgut drain introduced, the edges of the wound brought together by one horse-hair stitch at the middle point of the wound, and a carbolic gauze dressing applied.
>
> "14*th May*.—Complete paralysis of right hand and arm. On protrusion of tongue, the tip points very much to the left side No aphasia. Pupils equal. Intellect clear.
>
> "15*th May*, 10 A.M.—Tongue is now no longer affected. Other symptoms remain unchanged.
>
> "16*th May*, 8 P.M.—Moved arm, as a whole, up to head on being requested to do so. No movement at elbow, wrist, or fingers; and no power of pronation and supination.
>
> "17*th May*, 10 A.M.—Can move forearm, flexing and extending at the elbow and also at the wrist. No grasping of fingers, and no supination or pronation of fore-arm.
>
> "On the same day, at 5 P.M.—Can now grasp slightly with the fingers.
>
> "18*th May*, 10 A.M.—Can flex and extend the fingers freely, and can now pronate and supinate the fore-arm.
>
> "19*th May*.—Wound dressed under spray; looks healthy, and is healing rapidly. Catgut drain removed."

(The patient made, after this date, a rapid and complete recovery).

You will see that we have here to deal with a distinct group of paralyses, which in the course of six days have one by one disappeared. The question arises—"Does Ferrier's theory supply any explanation of the cause of these paralyses, and of the mode in which they have one by one passed away?" On referring to the diagram (Fig. 2) you will see that the line of fracture passes from behind forwards through centre *c* behind the fissure of Rolando, and then through 6 onwards into 5, in front of the fissure. Now *c*, according to Ferrier, is a centre for movements of the hand and wrist of the opposite side of the body. Similarly, centre 6 is that for supination and pronation of the fore-arm; and 5 that for extension forwards of the upper extremity as a whole. These three important centres lie exactly in the course of a clean-cut wound, reaching down to, and destroying brain substance; so that here we have at once a possible explanation of the major symptoms of the case—viz., the complete loss of movement in the right upper extremity.

There remain, however, the equally well-defined tongue symptoms of which to seek an explanation.

It is evident that in such a wound, where so many vascular parts are divided, there must be pretty considerable intracranial hæmorrhage; and it is also evident that all the blood effused is not likely to find vent externally, but in the deeper parts of the wound it will collect and spread itself over the brain surface. Under ordinary circumstances such an effusion would spread itself equally in all directions, following the law of intracranial pressure, which is equal in every direction, and be but slightly influenced by the action of gravity. In this case, however, a special mechanical agent was at work, for, bounding the wound above, was a strongly-depressed portion of the skull, pressing on the subdural space so as partly or completely to obliterate it. Hence the blood, fenced in on this side, spread itself downwards over the side of the brain, along the fissure of Rolando, towards the fissure of Sylvius, and by its presence pressed on the subjacent convolutions. I have indicated this effusion in Fig. 2 by the shaded portion below the line of the wound, the shading being lighter in those parts in which, from their greater distance from the bleeding points, the effusion would lie less thickly.

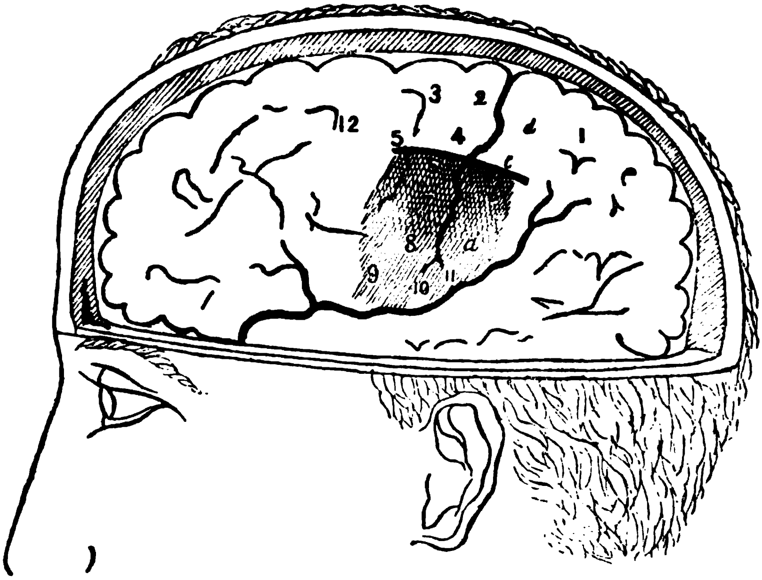

FIG. 2.

And here, I think, we have an explanation of the tongue symptoms; for, as you observe, the blood, and its subsequently-produced clot, must have extended over the areas 7, 8, 9, 10, and 11, which Ferrier describes as the centres concerned in movements of the tongue and of the facial muscles. The pointing of the tongue to the left side on protusion showed a loss of power of the muscles on the right side of that organ, with which the centres just named are in functional connection.

One point of difficulty still remains; for the centre 2, 3, 4 may be pointed to, and the question asked, Why did not this centre supply motor power to the opposite upper extremity, in so far, at least, as co-ordinated movements are concerned? We had in this very region a strongly depressed fragment of skull, which from its position, must have pressed on that portion of the brain, and this, superadded to the effect of the original blow, affords ample explanation of the symptom.

We now approach perhaps the most interesting feature of the whole case—viz., the order in which the paralyses disappeared; and I must here draw your attention to a very remarkable fact with regard to the areas at and around the seat of fracture. The symptoms due to interference with outlying areas first disappeared, the symptoms due to injury of the area beneath the centre of the wound persisted to the last.

In any injury, the result of direct violence, as was here the case, the chief force is expended on the central point of the part injured, but there is an area of disseminated force all around, in which the amount of disturbance becomes gradually diminished as one passes from the centre towards the periphery of the disturbed district.

The tongue symptoms were the first to clear up, which one would have expected from the foregoing considerations. That was on the third day after the accident. On the fourth day, we find that the arm as a whole could be moved. This function is associated by Ferrier with centre 5, which you also observe to be an outlying district lying at and beyond the anterior end of the wound. (See Fig. 2.) On the fifth day, movements of flexion and extension were present at the elbow and wrist joints; and later on the same day, slight movements of the fingers were possible. Thus centre *c* and a part of 6 seem to have returned to their normal functions; and on the following morning, that of the sixth day, supination and pronation of the fore-arm were possible, localised by Ferrier in centre 6, the function of which was thus complete; and this centre you will see lies immediately below the central point of the fracture, and was thus the point on which the greatest force was expended.

Such a series of symptoms seems at first sight to lend important support to Ferrier's theory; we must, however, proceed with caution, lest we arrive at too hasty a conclusion with regard to these so-called "motor centres." Many leading physiologists repudiate that term altogether as applied to these areas, and describe them as centres of volition, which dominate motor power indirectly, or as centres for the appreciation of muscular sense, neither of which theories is at all discountenanced by the facts of the present case. To my own mind, the view that these areas are really centres for motor functions much more commends itself; but in the meantime, until our knowledge has developed to a greater degree of exactitude, let us not neglect carefully to observe and place on record the facts of the cases which may come under our notice, on which basis alone can any advance be made.

## THE STATISTICS OF TRACHEOTOMY FOR CROUP AND DIPHTHERIA.

By Arnold Hirst Watkins, M.D., M.R.C.S.

TRACHEOTOMY has for so many years taken its place as one of the standard operations of surgery, and its performance in cases of croup and diphtheria been advocated by so many eminent surgeons and physicians, that it may be asked what need is there at this date to inquire into its results.

If, however, one looks into any standard work on the subject, he finds only the broadest generalisation as to its results given, usually quite irrespective of age of patient or nature of disease; and it is usually the experience of one particular operator that is quoted, the usual statement being that by the operation one out of every three or four cases are saved which would otherwise have died.

In the following paper I have endeavoured to gather together the statistics hitherto published, and tabulate them according to the age of the patients, and the nature of the disease. I have also collected all the new cases that I could get particulars of, and treated them in the same manner. These last I regard as of special value, because they are wholly unselected, and may, therefore, be expected to give an approximately true average of the results of the operation; while conclusions based on the statistics published by individual operators are almost sure to be too favourable, since no man is likely to publish his cases, unless he has had, at any rate, a measure of success, though I expect many operators, who have not had a large experience, have been uniformly unsuccessful. I would simply, in evidence of the likelihood of this, quote the statement that Monod operated forty times before he had a successful case, and Guersant twenty-three times; while Dr. Jacobi, of New York, at the International Medical Congress, said—"When I could operate early, I had twenty per cent. of recoveries. Since that time, being called to operate late, I lose many more; and have lost fifty cases in succession."

I shall first give particulars of a few cases in my own practice, taking only the operations for either croup or diphtheria,—not that there is anything specially worthy of note in them, but because I shall have occasion to refer to them again later on, with regard to the manner of death in the fatal cases.

1. 13*th March*, 1876.—Male, aged 4. For croup of about three days' duration. The disease was somewhat far advanced when I first saw the child, and I operated the same night, medicinal treatment being apparently unavailing. The child was comatose at time of operation, which was done without chloroform, no struggling of any consequence taking place. Artificial respiration was resorted to immediately the opening was made, and the child speedily became conscious again, and for the first few hours seemed to be doing well. Pulse and respiration, however, became more and more rapid, and fever higher, and the child died about eighteen hours after operation.

2. 4*th June*, 1877.—Female, age 2. For diphtheria of about six

days' duration. The child was moribund at time of operation, parents having refused to allow the operation earlier, and begging me to perform it in the face of impending death. I sent for a tube and proceeded to open the trachea with my pocket instruments. There was pretty free venous hœmorrhage; the tube did not arrive owing to the stupidity of the messenger, and the child never rallied, dying on the table.

3. *19th March,* 1880.—Female, age 6. Was suffering from croup, probably diphtheritic, of some days' duration. Tracheotomy afforded complete temporary relief to the breathing, but pulse and temperature rose rapidly, and breathing became quick and difficult. She died about twenty hours after the operation.

4. *6th May,* 1880.—Male, age 2. Croup, four days' duration. Tracheotomy gave relief, but pulse and temperature and rate of respiration were steadily rising when one or two suffocative attacks occurred, one of which came on and proved fatal in my presence twelve hours after operation, despite the removal of both tubes and attempt to clear the trachea with a feather. A post-mortem examination of the neck only was permitted, when it was found that a large piece of false membrane had been detached, and being rolled up on itself had completely blocked up the lower part of the trachea.

5. *24th July,* 1880.—Female, age 10. Croup, thirty-six hours' duration, but threatened with speedy suffocation. Tracheotomy performed. After a tedious illness from bronchitis, complicated with some sloughing of the wound and inability to swallow, she finally made a good recovery.

6. *29th November,* 1881.—Male, age 1 year. Child had been ailing for some days, but distinct symptoms of croup only developed themselves about thirty-six hours before operation. Result, as in the other cases, temporary relief of breathing, but pulse and temperature rose rapidly, and respiration quickened, with a fatal result about twenty-four hours after the operation.

In the statistics which follow I have found it impossible to separate the operations for acute laryngitis in young children from those for diphtheria and croup, the latter disease and acute laryngitis being evidently often not distinguished from each other.

### STATISTICS HITHERTO UNPUBLISHED.

EDINBURGH HOSPITAL FOR SICK CHILDREN. OPERATIONS PERFORMED DURING LAST THREE YEARS.

| | | | | |
|---|---|---|---|---|
| 1 | F. | 1 Year 6 Months, | Diphtheria, . . | Died. |
| 2 | M. | 8 Years, . . | Laryngitis, . . | Recovered. |
| 3 | F. | 2 „ 6 Months, | Diphtheria, . . | Died. |
| 4 | F. | 3 „ 6 „ | Do. . . | Do. |
| 5 | M. | 3 „ . . | Do. . . | Do. |
| 6 | M. | 2 „ 6 Months, | Do. . . | Do. |
| 7 | M. | 1 „ 7 „ | Croup, . . . | Do. |
| 8 | M. | 3 „ 6 „ | Do. . . . | Do. |
| 9 | F. | 2 „ 6 „ | Do. . . . | Do. |
| 10 | M. | 1 „ 10 „ | Do. . . . | Do. |

## Edinburgh Royal Infirmary. Operations performed during last Six or Seven Years for Croup and Diphtheria.

| | | | | |
|---|---|---|---|---|
| 1 | M. | 5 Years, | ... | Died. |
| 2 | M. | 7 „ | Diphtheria, | Died. |
| 3 | M. | 1 „ 8 Months, | ... | Result not stated. |
| 4 | M. | 5 „ | Diphtheria, | Died. |
| 5 | M. | 7 „ | ... | Do. |
| 6 | M. | 1 „ 3 Months, | ... | Do. |
| 7 | F. | 5 „ | Diphtheria, | Do. |
| 8 | F. | 4 „ | Do. | Do. |
| 9 | M. | 1 „ 8 Months, | Do. | Do. |
| 10 | (?) | 1 „ | Croup, | Do. |
| 11 | M. | 6 „ | Do. | Recovered. |
| 12 | F. | 4 „ | Do. | Do. |
| 13 | M. | 2 „ | Do. | Died. |
| 14 | M. | 3 „ | Do. | Do. |
| 15 | (?) | 4 „ 6 Months, | Diphtheria, | Recovered. |
| 16 | (?) | 4 „ 6 „ | Do. | Do. |

## Operations performed at Chalmers' Hospital, Edinburgh.

| | | | | |
|---|---|---|---|---|
| 1 | M. | 2 Years, | Croup, | Died. |
| *2 | M. | 1 „ 2 Months, | Do. | Recovered. |
| 3 | M. | 2 „ | Do. | Died. |
| 4 | F. | 11 „ | Do. | Do. |

## Operations performed at the Glasgow Royal Infirmary during last Two Years, with the exception of those in the Wards of Drs. G. Buchanan, Cameron, Clarke and M'Ewen.

| | | | | |
|---|---|---|---|---|
| 1 | M. | 3 Years, | Croup, | Died. |
| 2 | M. | 5 „ | Diphtheria, | Do. |
| 3 | (?) | 2 „ | Do. | Do. |
| 4 | (?) | 5 „ | Do. | Do. |
| 5 | M. | 11 „ | Chronic Croup, | Recovered. |
| 6 | M. | 2 „ | Croup, | Died. |
| 7 | F. | 3 „ | (?) | Do. |
| 8 | M. | 2 Years 6 Months, | Diphtheria, | Do. |
| 9 | F. | 5 „ 6 „ | Do. | Recovered. |
| 10 | M. | 1 „ 8 „ | Croup, | Died. |
| 11 | M. | 2 „ 6 „ | Do. | Do. |
| 12 | M. | 3 „ | Diphtheria, | Do. |
| 13 | M. | 2 „ 10 Months, | Croup, | Do. |

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* Lived eighteen months, wearing the tube all the time, but finally died of bronchitis.

## OPERATIONS PERFORMED FOR CROUP AND DIPHTHERIA AT THE GREAT ORMOND STREET HOSPITAL FOR SICK CHILDREN SINCE 1864.

| | | | | |
|---|---|---|---|---|
| 1 | F. | 3 Years, | Diphtheria, | Died. |
| 2 | M. | 4 „ 6 Months, | Do. | Do. |
| 3 | M. | 5 „ 8 „ | Do. | Do. |
| 4 | F. | 3 „ 3 „ | Do. | Do. |
| 5 | M. | 3 „ 6 „ | Do. | Do. |
| 6 | M. | 3 „ | Croup, | Do. |
| 7 | F. | 6 „ | Diphtheria, | Recovered. |
| 8 | F. | 2 „ 6 Months, | Do. | Died. |
| 9 | M. | 5 „ | Croup, | Do. |
| 10 | M. | 1 „ 1 Month, | Do. | Do. |
| 11 | M. | 3 „ | Diphtheria, | Do. |
| 12 | M. | 2 „ 3 Months, | Croup, | Do. |
| 13 | F. | 4 „ | Do. | Do. |
| 14 | M. | 5 „ | Do. | Do. |
| 15 | F. | 4 „ | Do. | Do. |
| 16 | F. | 2 „ 6 Months, | Do. | Do. |
| 17 | M. | 3 „ | Diphtheria, | Do. |
| 18 | M. | 3 „ | Do. | Recovered. |
| 19 | F. | 4 „ | Croup. | Do. |
| 20 | F. | 3 „ 6 Months, | Diphtheria, | Died. |
| 21 | F. | 4 „ 6 „ | Do. | Do. |
| 22 | M. | 3 „ 9 „ | Do. | Do. |
| 23 | M. | 1 „ 1 „ | Do. | Do. |
| 24 | M. | 2 „ 5 „ | Croup, | Recovered. |
| 25 | F. | 2 „ 6 „ | Diphtheria, | Died. |
| 26 | M. | 1 „ 5 „ | Laryngitis, | Do. |
| 27 | M. | 5 „ 9 „ | Croup, | Recovered. |
| 28 | F. | 1 „ 9 „ | Diphtheria, | Died. |
| 29 | M. | 3 „ | Do. | Do. |
| 30 | F. | 2 „ 8 Months, | Do. | Do. |
| 31 | F. | 3 „ | Do. | Do. |
| 32 | F. | 3 „ 6 Months, | Croup, | Do. |
| 33 | F. | 3 „ 3 „ | Do. | Recovered. |
| 34 | F. | 2 „ | Diphtheria, | Died. |
| 35 | M. | 5 „ | Do. | Recovered. |
| 36 | M. | 3 „ | Do. | Died. |
| 37 | F. | 1 „ 7 Months, | Croup, | Do. |
| 38 | F. | 1 „ 9 „ | Diphtheria, | Do. |
| 39 | F. | 9 „ | Do. | Do. |
| 40 | M. | 3 „ 10 Months, | Croup, | Do. |
| 41 | F. | 7 „ | Diphtheria, | Do. |
| 42 | M. | 2 „ 3 Months, | Croup, | Do. |
| 43 | M. | 2 „ | Do. | Do. |
| 44 | F. | 8 „ | Diphtheria, | Do. |
| 45 | M. | 3 „ | Do. | Recovered. |
| 46 | M. | 5 „ | Croup, | Do. |
| 47 | F. | 3 „ | Do. | Died. |
| 48 | F. | 1 „ 8 Months, | Diphtheria, | Do. |
| 49 | F. | 3 „ 3 „ | Croup, | Do. |
| 50 | M. | 2 „ | Diphtheria, | Recovered. |
| 51 | F. | 6 „ | Do. | Do. |
| 52 | F. | 8 „ | Croup, | Do. |
| 53 | M. | 2 „ 9 Months, | Asthenic Croup, | Died. |
| 54 | F. | 7 „ | Diphtheria, | Recovered. |

| | | | | |
|---|---|---|---|---|
| 55 | M. | 4 Years, . . | Diphtheria, . . | Recovered. |
| 56 | F. | 3 „ . . | Do. . . | Died. |
| 57 | M. | 1 „ 4 Months, | Croup, . . . | Do. |
| 58 | F. | 4 „ . . | Diphtheria, . . | Do. |
| 59 | M. | 4 „ . . | Do. . . | Do. |
| 60 | M. | 2 „ 6 Months, | Croup, . . . | Do. |
| 61 | M. | 4 „ . . | Diphtheria, . . | Do. |
| 62 | F. | 5 „ . . | Do. . . | Do. |
| 63 | F. | 1 „ 9 Months, | Acute laryngeal obstruction, . . | Do. |
| 64 | F. | 5 „ 8 „ | Diphtheria, . . | Do. |
| 65 | F. | 2 „ 7 „ | Do. . . | Do. |
| 66 | M. | 1 „ 11 „ | Croup, . . . | Do. |
| 67 | M. | 3 „ 4 „ | Diphtheria, . . | Do. |
| 68 | F. | 1 „ 4 „ | Do. . . | Do. |
| 69 | M. | 7 „ . . | Do. . . | Recovered. |
| 70 | F. | 4 „ 9 Months, | Do. . . | Died. |
| 71 | M. | 3 „ 6 „ | Laryngitis, . . | Died. |
| 72 | F. | 4 „ 8 „ | Diphtheria, . . | Do. |
| 73 | F. | 3 „ 3 „ | Do. . . | Do. |
| 74 | M. | 2 „ 1 „ | Laryngitis, . . | Recovered. |
| 75 | M. | 1 „ 3 „ | Do. . . | Died. |
| 76 | F. | 4 „ 3 „ | Diphtheria, . . | Do. |
| 77 | M. | 9 „ 8 „ | Do. . . | Do. |
| 78 | M. | 2 „ 5 „ | Do. . . | Do. |
| 79 | F. | 3 „ 6 „ | Do. . . | Do. |
| 80 | M. | 2 „ 6 „ | Do. . . | Recovered. |
| 81 | F. | 4 „ 8 „ | Do. . . | Died. |
| 82 | M. | 2 „ 10 „ | Do. . . | Do. |
| 83 | F. | 3 „ 8 „ | Do. . . | Recovered. |
| 84 | M. | 3 „ 10 „ | Do. . . | Do. |
| 85 | M. | 1 „ 10 „ | Do. . . | Died. |
| 86 | M. | 1 „ 4 „ | Do. . . | Do. |
| 87 | M. | 1 „ 9 „ | Do. . . | Do. |
| 88 | M. | 2 „ 7 „ | Do. . . | Do. |
| 89 | M. | 1 „ 1 „ | Do. . . | Recovered. |
| 90 | M. | 4 „ . . | Do. . . | Died. |
| 91 | F. | 6 „ 1 Month, | Do. . . | Do. |
| 92 | M. | 10 „ | Do. . . | Do. |
| 93 | M. | 3 „ . . | Do. . . | Do. |
| 94 | F. | 5 „ . . | Do. . . | Do. |
| 95 | M. | 1 „ 5 Months, | Laryngitis, . . | Recovered. |
| 96 | F. | 2 „ 4 „ | Diphtheria, . . | Died. |
| 97 | M. | 1 „ 9 „ | Do. . . | Do. |
| 98 | M. | 3 „ 6 „ | Laryngeal obstruction, | Do. |
| 199 | M. | 2 „ 7 „ | Diphtheria, . . | Do. |
| 100 | M. | 9 „ 8 „ | Do. . . | Do. |
| 101 | F. | 5 „ 2 „ | Do. . . | Do. |
| 102 | F. | 11 „ | Do. . . | Do. |
| 103 | F. | 2 „ . . | Do. . . | Do. |
| 104 | F. | 2 „ 2 Months, | Do. . . | Do. |
| 105 | F. | 4 „ 8 „ | Do. . . | Do. |
| 106 | M. | 9 „ . . | Do. . . | Recovered. |
| 107 | F. | 1 „ 6 Months, | Do. . . | Died. |
| 108 | M. | 3 „ 1 „ | Do. . . | Do. |
| 109 | M. | 3 „ 4 „ | Do. . . | Do. |
| 110 | F. | 3 „ . . | Do. . . | Do. |
| 111 | M. | 4 „ 5 Months, | Do. . . | Recovered. |

| | | | | |
|---|---|---|---|---|
| 112 | F. | 2 Years 1 Month, | Diphtheria, | Died. |
| 113 | F. | 3 „ 1 „ | Do. | Do. |
| 114 | M. | 1 „ 9 „ | Laryngeal obstruction, | Do. |
| 115 | M. | 1 „ 4 „ | Diphtheria, | Do. |
| 116 | M. | 2 „ 6 „ | Do. | Recovered. |
| 117 | F. | 6 „ 5 „ | Do. | Do. |
| 118 | F. | 5 „ 4 „ | Do. | Died. |
| 119 | M. | 3 „ 7 „ | Do. | Recovered. |
| 120 | M. | 3 „ | Do. | Died. |
| 121 | F. | 9 „ | Do. | Do. |
| 122 | F. | 3 „ 3 Months, | Do. | Do. |
| 123 | F. | 5 „ | Do. | Recovered. |
| 124 | F. | 2 „ 8 Months, | Do. | Do. |
| 125 | F. | 3 „ 9 „ | Do. | Do. |
| 126 | F. | 2 „ 8 „ | Do. | Died. |
| 127 | M. | 1 „ 8 „ | Do. | Do. |
| 128 | F. | 5 „ 6 „ | Do. | Do. |
| 129 | M. | 2 „ 7 „ | Do. | Do. |
| 130 | F. | 3 „ 6 „ | Laryngitis, | Do. |
| 131 | F. | 6 „ 2 „ | Diphtheria, | Do. |
| 132 | F. | 5 „ | Laryngitis, | Do. |
| 133 | M. | 1 „ 1 „ | Do. | Do. |
| 134 | M. | 2 „ 8 „ | Diphtheria, | Do. |
| 135 | M. | 2 „ 6 „ | Do. | Do. |
| 136 | M. | 2 „ 6 „ | Do. | Do. |
| 137 | M. | 5 „ | Do. | Do. |
| 138 | M. | 2 „ | Do. | Do. |
| 139 | M. | 3 „ | Do. | Do. |
| 140 | M. | 2 „ 7 Months, | Do. | Do. |
| 141 | F. | 10 „ | Do. | Do. |

(*To be continued.*)

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# CORRESPONDENCE.

## THE CASE OF SPONTANEOUS VERSION.

THE case of spontaneous version, recorded by A. St. Clair Buxton, F.R.C.S., in No. 6 of the *Edinburgh Clinical Journal*, reminds me of a case which occurred a few years ago in my practice, and concerning which a few words may be interesting to some readers of the Journal. Having been requested to visit a patient prematurely in labour (about the seventh month of utero-gestation, I think), I found that the liquor amnii had escaped some time previously, and that an arm (I do not now remember which one) occupied the vagina. The "pains" were severe, and the shoulder of the child was firmly encircled by the os-uteri. Failing in my attempts to "turn" by the usual method, I despatched a messenger for a well-known accomplished accoucheur; but, finding that he did not come so quickly as I expected, and fearing that rupture of the uterus would occur if I waited longer, I hit upon a method of delivery which, whether it be approved of or not, answered well on that occasion, and speedily relieved the poor woman of distress, and myself of much anxiety.

Completely changing my tactics, I seized the presenting arm with one hand, and forcibly dragged it and the upper part of the child's body so low down as to enable me to pass a finger or two of the other hand along the arm up to the trunk of the child; then, while steadily exercising downward pressure with my fingers, I gradually succeeded in getting them near to the child's pelvis; and, while still pressing downwards with the fingers of one hand (in order to bring down the breech if possible), I let go my hold of the presenting arm, and rapidly succeeded in bringing down the lower extremities; or, perhaps, it may be more correct to say that suddenly the arm went up, and the lower extremities passed down,—in fact, there was a "version"; but whether it should be called spontaneous (to a certain extent), artificial, or *compound*, if I may use the expression—for the process seemed to be a combination of spontaneous and artificial version—I am not quite prepared to decide.

Probably this mode of turning is chiefly applicable to cases in which the fœtus is small.

SOMMERVILLE OLIVER.

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## *REVIEW.*

**Diseases of the Nervous System.** By SAMUEL WILKS, M.D., F.R.S. 2nd Edition, 8vo, pp. 600. J. & A. Churchill, London, 1883.

THE pages of this book clearly indicate that it comes from the pen of one who has a very extensive clinical acquaintance with the diseases of which he writes. It is a reprint of lectures delivered at Guy's Hospital. It contains a large number of illustrative cases concisely narrated.

The clinical standpoint is prominent throughout. The arrangement of subjects is partly made with reference to clinical features, and differs in this respect from that which prevails in other recent treatises on diseases of the nervous system. It is divided into four parts: I. Brain; II. Spinal Cord; III. General and Functional Diseases; IV. Nerves. In this edition the section on spinal diseases has been in some measure rearranged so as to bring it into closer accord with the arrangement in other recent works on diseases of the nervous system. The author, in his Preface to the Second Edition, almost apologises for this change, which "has reference rather to pathological considerations than to greatly advanced clinical knowledge." He states that he has "always advocated the opinion that the nomenclature of diseases should be founded on clinical facts rather than on pathological considerations. . . . There may often be no disagreement about the case which two practitioners are treating, although they may dissent widely about its pathology. . . . There is not a single organic disease of the nervous system which may not be simulated by a functional and curable one."

Unless in exceptional cases, it is surely a retrograde step to name diseases from their symptoms. We should think that it would tend to a treatment of symptoms. Scientific treatment must be based upon a sound pathological knowledge. The class of cases above instanced of functional simulating organic disease is an argument against such a style of nomenclature. In the lectures on hemiplegia and apoplexy, Dr. Wilks has to explain the difficulty arising in connection with this very practice which he advocates, and in the interesting chapter on epilepsy he offers a strong argument against it when he points out the value of obtaining a knowledge of the pathological conditions which may exist in any case of convulsive seizure. Of course it is important always to bear in recollection wherein we are ignorant, but so far as our knowledge extends we think it should be used whether in name, description, or treatment of disease.

Part I., "Brain," commences with a short resume of the anatomy and physiology of the brain.

Under "Hemiplegia," in addition to those cases arising from brain disease, there are also considered those caused by spinal disease, and those occurring in connection with hysteria. Under "Hemianæsthesia" is a very interesting discussion of functional *versus* organic disease following injury. In the chapter on apoplexy, while considering the differential diagnosis of causes of semi-consciousness and of unconsciousness, Dr. Wilks does not err on the side of rashness; and we think that, without entering the field of romance, he might have rendered more assistance in these difficult cases.

Part II. begins with the anatomy, physiology, and symptomatology of the cord.

Under "Paraplegia," Landry's paralysis is considered; also diphtheritic paralysis. The description of the latter does not give a very fair idea of that affection. It is stated that all the physical powers are (not "may be") affected. The graver forms are described, but there is no indication that in the majority of cases the paralysis is partial both as to distribution and completeness. Peripheral paralysis finds a place under the same heading, and is little more than mentioned; no description of symptoms and course is given. Malarious paraplegia is not even named.

The last chapter is devoted to a consideration of remedies. No one can accuse Dr. Wilks of being a rash enthusiast. Considering the frequency of syphilis as a cause of nervous diseases, he recommends that in all obscure and doubtful cases mercury and iodide of potassium should be first tried.

*Opium* he finds very useful. Of *belladonna* he can say but little in its favour, except in a few cases of epilepsy and in affections of the vaso-motor system; of *strychnia*, that its value is slight; of *chloral*, that we gain little by possessing it, and he is not at all sure that mankind has been much better off for the invention. *Phosphorus* is in his opinion all but valueless. *Camphor* is a good thing to play with. *Bromide of potassium* appears to be useful in a few complaints, but is a very poor remedy. *Chloride of ammonium* is one of our best remedies in neuralgia. Of *iron*, *zinc*, *silver*, *arsenic*, he writes more favourably; so also of *quinine*. We should have wished to have had his opinion of ergotine in congestive disorders. Heat, douching, counter-irritation, and massage are noticed shortly. Electricity has received rather fuller consideration.

The anatomy and physiology, and more particularly the pathology, are not quite up to date, and in many cases the pathological details are scanty.

In the description of the various diseases a want of method will be felt by some. The same holds true as regards principles of treatment.

In the clinical history the facts of importance from a diagnostic point of view are hardly brought into sufficient prominence.

Some of the subjects are treated at considerable length. Among those the lectures on epilepsy, hysteria, and hypochondriasis are deeply interesting. Some subjects are rather summarily dismissed.

The book is well worthy of a very careful perusal. It is full of the clinical experiences of an able and careful observer; and as he is cautious of his statements, these carry with them great weight. The style is lucid and pleasing.

James Ritchie.

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## *REPORT ON OBSTETRICS.*

1. **Merkel.**—Ueber 100 Fälle von Kraniotomie nebst Bemerkungen zur Stellung und Technik dieser Operation. (100 Cases of Craniotomy, with Remarks on the Indication for, and the Method of Performing it.) *Archiv. f. Gynäkologie*, Bd. xxi. Hft. 2.
2. **Hervieux.**—Influence des Epidémies sur le Terme de l'Accouchement. (Influence of Epidemics on the Occurrence of Labour.) *Bulletin de l'Académie de Médecine*, No. 45.
3. **Dohrn.**—Zur Behandlung der Nachgeburtszeit. (On the Treatment of the Third Stage of Labour.) *Deutsche Medicinische Wochenschrift*, No. 39, 1883.
4. **Keith.**—Supra-Vaginal Hysterectomy, with Remarks on the Principle of the Extra-Peritoneal Method of Treating the Pedicle. *British Medical Journal*, 8th Dec. 1883.
5. **Jacobi, Mary Putnam.**—Two Cases of Aspiration of Dermoid Cysts followed by Inflammation. *American Journal of Obstetrics*, November, 1883.
6. **Karl Braun.**—Ueber zwölf Fälle von Kaiserschnitt mit Hysterektomie bei engem Becken. (Twelve Cases of Porro's Operation). *Wiener Medizinische Wochenschrift*, 10th and 17th November, 1883.

1. **Merkel on 100 Cases of Craniotomy, with Remarks on the Indication for, and the Method of Performing it.**—Ninety-eight of the cases occurred in the extern and intern practice of the Maternity at Leipzig, during the six years 1877-82; the number of births in the same period was 5540, making a percentage of 1·5 craniotomy cases. In 64 cases, the perforation of the living child was had recourse to. As to the condition of the pelvis, 46 were simple flat, 36 generally contracted and flat, 1 kyphoscoliotic, 1 scolio-rachitic flat, 1 scolio-rachitic asymmetrical, 1 kyphoscoliotic generally contracted, 1 transversely contracted. Turning is evidently not the recognised treatment in flat pelvis, as in 11 cases, with a conjugate of 3¼ and upwards, craniotomy was performed without version being tried in the first instance. In all cases the scissor-shaped perforator was used. The cephalotribe was used fifty-one times, the cranioclast twenty-two times, which shows that the former instrument is in favour at Leipzig. The mortality for perforation of the presenting head (24 cases) reached the very low figure of 4·7, of the after-coming head (16 cases) 25 per cent.; the total mortality was 7 per cent.

A. H. F. Barbour.

2. **Hervieux on the Influence of Epidemics on the Occurrence of Labour.**—This is an important paper on the occurrence of premature labour in maternity hospitals, its probable cause, and deductions therefrom. In a total number of accouchements of 16,173, finished in the Maternité Hospital at Paris from 1861 to 1872, 10,937 took place at full term, and 5236

[illegible]—Dec. 22, 1883.

before full term,—that is, in the enormous proportion of 32·05 per cent. This only takes account of cases towards the latter end of pregnancy, as patients were, as a rule, admitted after the sixth month. Elaborate tables are given, showing the exact period from conception, when the accident happened. Another important fact shown in these tables is, that while the first six years' statistics (1861-66) show an annual increment to the percentage, those of the second six years (1866-72) give an annual decrease. While the causes of premature labour, usually adduced as physical and moral distress, fatigue, and insufficiency of nourishment, might account for the fact of its occurrence, yet such causes would not explain the increase and decrease in the various years; and further, these causes must have operated in a maximum degree during the memorable years of 1870-71, and in a minimum during the earlier prosperous years. Nevertheless, the number was less during the former than the latter. To explain the annual regular increase from 1861 to 1867, and decrease from 1867 to 1872, some other cause must be sought for, and that cause seems to have been the sanitary condition of the hospital. To demonstrate this, there is given, during the same period of twelve years, the maternal mortality statistics in the same wards, and the results are interesting. From 1861 to 1864 there is an increasing mortality from 8·53 in the former year to 19·89 in the latter year. In 1865, the mortality was 5·16; in 1866, 7·80; after that a gradual decrease, till in 1871 this reaches to 2·74, and 1872 to 3·44. In 1864, while the maternal mortality is 19·89, the number of premature labours is 34·69; in 1865 and 1866, while the mortality is 5·16 and 7·80 respectively, the number of premature labours for the corresponding years is 40·28 and 41·50. Here a discrepancy arises which requires explanation, namely, why do premature confinements continue to increase, while the puerperal conditions are gradually becoming better? To explain this, the author remarks that the puerperal poison has two modes of action; it may attack both mother and child, or the mother alone, while the child may be born alive; or again, its action is concentrated on the fœtus, in some cases causing its expulsion before term, in others killing it entirely. He also remarks that the chief interest in hospital practice pertains to the mother, so that when the maternal mortality is lowest the sanitary condition is considered most perfect, without regard to the infant mortality. He concludes from these considerations, that the epidemic arriving at its extreme in 1863 to 1864, had attacked the maternal element, while in the three following years the mother was spared, but the fœtus had been more easily attacked. As the sanitary condition slowly became better, the progression of premature confinements was arrested. Two propositions are laid down from these results, namely, "The more a pregnant woman remains near an infected centre, the more are the chances of premature confinement," and the converse of this.

From the above facts the writer thinks there is a puerperal poison more apt to be generated where numbers of puerperal women are congregated, and that this poison is admitted into the system through the respiratory channels, and not usually by the placental surface, as this is completely closed before labour. He has always believed in the germ theory as explaining puerperal septicæmia of pregnant women. He concludes by remarking that—(1) in times of epidemics, every maternity hospital should be closed to pregnant women; (2) at other times women should not be admitted till they are as near as possible the period of their lying-in.

Alex. Black.

3. **Dohrn on the Treatment of the Third Stage of Labour.**—In this paper the author advocates the expectant treatment of the third stage of labour in preference to that of expression of the placenta introduced by Credé. The routine practice pursued by him in the Konigsberg Lying-in Hospital is as follows:—After the birth of the child the patient is kept on her back, her genitals cleaned, fresh cloths applied, her legs kept close together and extended, and the position of the fundus uteri ascertained by gentle abdominal palpation. The nurse remains beside the patient for the next few hours, the patient being instructed to call her if she feels any passage of blood from the vagina. Only when this occurs does the nurse examine the cloths and ascertain the position of the fundus uteri. Usually within two hours the patient experiences a bearing-down sensation. A bed-pan is then put under her, she is told to press down, and the placenta, and generally along with it the membranes, is shot out at the vaginal aperture. Where the membranes do not follow, they are gently twisted out in a string. In cases where pieces of membrane are retained, the hand is never introduced into the genital canal to remove them except when they appear at the entrance, in which case they are removed by traction.

Dohrn states that the risks of hæmorrhage, retained membrane, and fever during the puerperium are lessened by this procedure. The following tables show the results in 1000 cases where Credé's method was resorted to, as compared with those in a similar number of cases where the expectant treatment was followed:—

RESULTS IN 1000 CASES, PLACENTA EXPRESSED BY CREDÉ'S METHOD.

| Placenta expelled within | Cases. | Fever. | Hæmorrhage. | Retained Membrane. |
|---|---|---|---|---|
| Minutes. | | Per Cent. | Per Cent. | Per Cent. |
| 1 to 5 | 206 | 32 | 10 | 16 |
| 6 to 10 | 337 | 24 | 6 | 13 |
| 11 to 15 | 355 | 20 | 5 | 10 |
| 16 to 30 | 74 | 21 | 4 | 9 |
| 31 and over | 28 | 14 | 3 | 14 |

14 Deaths in 1000.

RESULTS IN 1000 CASES, PLACENTA EXPELLED SPONTANEOUSLY.

| Placenta expelled within | Cases. | Fever. | Hæmorrhage. | Retained Membrane. |
|---|---|---|---|---|
| Minutes. | | Per Cent. | Per Cent. | Per Cent. |
| 1 to 5 | 29 | 17 | 19 | 3 |
| 6 to 10 | 45 | 26 | 9 | 9 |
| 11 to 15 | 128 | 21 | 5 | 4 |
| 16 to 30 | 368 | 18 | 2 | 6 |
| 31 and over | 430 | 15 | 3 | 2 |

3 Deaths in 1000.

These tables call for a few explanatory remarks. All the above cases were carefully selected. The labours were natural, the patient healthy, and no complication nor instrumental interference. Under the heading of fever are noted all those cases in which during the first eight days the temperature rose above 38·2C, all those where the fever was due to sore nipples or mastitis being excluded. Those cases where a copious discharge of blood took place when the placenta came away, or during the eight days following labour, are classed as hæmorrhagic, while in the column of retained membranes are found all the instances where a deficiency was noticed on examination of the placenta after its expulsion, or where a portion of membrane was discovered in the lochial discharge. In connection with this it may be mentioned that in ten of the fatal cases after expression by Credé's method, Dohrn states pieces of membrane were left in the canals.

Dohrn concludes his valuable paper by briefly stating the results of his observations as follow:—

1. In 1000 patients in which the expulsion of the placenta was left to nature, the results were better than in 1000 others where Credé's method was used.

2. In the 1000 women where spontaneous expulsion occurred, there were, in a marked degree, fewer cases of hæmorrhage, retained membranes, or fever during the puerperium. In those where Credé's method was followed, there occurred numerous cases of defective membranes, and along with this several fatal illnesses.

3. The disadvantages of Credé's method are particularly noticeable in those cases where the placenta has been expressed within five minutes after the birth of the child. These diminish if we wait longer, but still exist in a much higher proportion than in the completely expectant method of treatment.

David Smart.

4. **Keith on Supra-Vaginal Hysterectomy.**—In this paper, Dr. Keith brings forward his results and experiences in the treatment of uterine fibroid tumours by supra-vaginal hysterectomy. He commences by expressing doubts as to the wisdom of the extent to which abdominal surgery for these special cases is being carried. The fact of the uterine fibroid having a limited life, troubling for a time but rarely killing, compels him to confess the great difficulty there is in deciding when to operate, and when to let alone.

The mortality in cases of operation is an exceedingly high one. Sir Spencer Wells, in 39 completed cases of hysterectomy, had 20 deaths. In 31 exploratory incisions for fibroid, partial operation, or attempts at removal, 1 out of every 6 died. Mr. Thornton's own experiences are, that for all operations "of one kind or another" for uterine fibroids, 1 out of every 3 died. Professor Schrœder lost 20 out of 66 cases, but the mortality of the last 40 cases had diminished to less than 1 out of every 4 patients operated upon.

These results strengthen Dr. Keith in his conviction, that "if surgery can do nothing better, hysterectomy should be laid aside." Information is required, he considers, on the following points:—1. What is the natural history of the various forms of uterine tumour after the menopause? 2. What proportion of cases has been seen to die directly from them, and what are the causes of death? 3. How often do simple fibrous tumours kill from hæmorrhage? 4. Details of a large number of operation cases, especially of the failures; successful cases tell little.

Passing to his practical results, Dr. Keith tells us that only ten years ago did he commence operating for the removal of fibroids by the supra-vaginal method. The first case upon which he operated was a rapidly-growing fibrous cystic tumour, with much solid, and it was mistaken for an ovarian tumour. The recovery was good. In the following year he removed a solid fibroid with a suppurating cavity. There were firm and extensive adhesions, and during the operation the patient nearly died from hæmorrhage. In the next case, there was alarming secondary hæmorrhage a week after operation, nearly proving fatal. Dr. Keith's first death occurred in his fourth case, nine days after the operation. On the fourth day after operation, the patient became acutely maniacal. The autopsy revealed no cause for death in the abdominal organs; "in the pelvis all was well, and there was nothing to be seen but the healthy repair of a great injury." The next sixteen cases proved successful. In these, the heaviest tumour removed was 42 lbs., the lightest 5 lbs.

The twenty-first case terminated fatally; the tumour weighed 30 lbs., and measured 30 by 31 inches, one-half of which was imbedded in "omental, intestinal, and mesenteric adhesions, of such firmness and tenacity that every portion had to be cut." A fatal result was not anticipated at the close of the operation; but, upon the seventh day, death occurred, "due to some form of blood poison." The last four cases have been successful, so that the mortality has been 8 per cent.

Of these twenty-five cases, nearly all were under observation for some time prior to operation. Every operation was completed. The average weight of the twenty-five tumours removed was nearly 17 pounds. Eighteen cases were conducted without the carbolic acid spray, with one death. Six with the spray, with one death. Most of the tumours were extra-peritoneal, one was intra-peritoneal. The bladder was six times dissected down. "It sometimes rose as high as the umbilicus, and its size was often remarkable." Dr. Keith remarks, "It is not an easy matter to distinguish its edges sometimes, if the ordinary stupid direction be followed, that the bladder be emptied before the operation is begun. Leave it full, and bladder difficulties are wonderfully modified." The average length of the operations was a little over one hour; in one case it was concluded under the half hour, in three cases it was prolonged to two hours."

Dr. Keith still holds to the treatment of the pedicle by the extra-peritoneal method with the clamp, "which at one time served us so well, but at which some are now throwing stones. The principle of the extra-peritoneal method is a sound one." To demonstrate this, his well-known statistics in ovariotomy are used. Though he still has much confidence in the extra-peritoneal method, he confesses that the long convalescence is a drawback to it, and he believes that "the intra-peritoneal method must be perfected if progress and improvement are to be made."

Dr. Keith looks forward to the time when the mortality after this operation shall be equivalent to what it now is after bad cases of ovariotomy. He dares not hope for the low mortality now achieved in ordinary ovarian tumours. The problem Dr. Keith raises is—Can the mortality be brought down to five per cent. in the bad cases? If it cannot be kept below ten per cent. is interference to be advised? From his own returns we have hopes that he will solve this. He has shown that he only preaches what he himself practises, and we believe that the future is not distant when the mortality following supravaginal hysterectomy will be below the limit he is now striving after.

Edwin Baily.

**5. Jacobi on Two Cases of Aspiration of Dermoid Cysts followed by Inflammation.**—*Case I.*—M. S.; 31; unmarried. Admitted to New York Infirmary, March, 1881. Quite healthy until two weeks before admission, when she was suddenly seized with a sharp pain in right inguinal region, on lifting a weight of 15 lbs., three days after a menstrual period. Uterus was found retroverted and sensitive. Region of right broad ligament was occupied by an elastic tumour the size of an orange, and the left ovary, felt through fornix, was enlarged. The uterus was replaced by cotton pad and rest.

By end of April the position of uterus was normal; the cyst was increased in size. On 29th April it was aspirated *per vaginam* with antiseptic precautions. Two ounces of thick fluid were withdrawn, when the aspiration was stopped on account of pain. The patient was put to bed, and treated with opium and stupes to abdomen. On the 30th temperature rose to 102°F.; pain in left side of chest; hurried breathing with friction sounds. 8th May—Pelvic pain, nausea, vomiting, temperature 104°.; and by 14th the tumour had reached the umbilicus. Menstruation came on, on 15th; and temperature fell to 100·7°; pulse 74. On 22nd May a thin, light-coloured stool was passed, after which the tumour was diminished in size. Pus continued to be discharged *per rectum* till 3rd August, there being sometimes as much as ℥viij. Menstruation came on without pain on 12th July. On 6th August the patient was collapsed; rectal temperature 98·5°. Treated with stimulants and hot applications, she rallied, and next day symptoms had entirely disappeared. Menstruation began on 14th August. She gradually improved, till recovery took place.

*Case II.*—A. P.; ·28. Consulted Dr. Jacobi for vesical tenesmus; duration two years. Bladder and urine normal, uterus anteverted, tumour in right broad ligament as large as an orange; no dysmenorrhœa. The tumour was aspirated without pain *per vaginam*, with antiseptic precautions. After forty-eight hours there was pain in "right hypogastrium," treated with opium and hot stupes. At end of ten days another short attack of pain occurred, and, as on the former occasion, without fever. Menstruation came on a week before its time, accompanied by great pain and swelling in "right hypogastrium." A tumour was found pressing down into the vagina. Large doses of opium and confinement to bed tided over this attack, and the next menstruation occurred without exacerbation of pain. At about the time of third menstruation she was seized with great pain. She vomited and succumbed on the fourth day.

At autopsy severe peritonitis was found. The cyst contained a cheesy detritus, yellow sebaceous fluid, with hair and tufts. It sprang from broad ligament, and was distinct from the ovary, although the latter was adherent to it. The cyst wall was thick and unruptured.

Dr. Jacobi calls attention specially to two facts. 1. That inflammation was excited by a minute traumatism in spite of antiseptic precautions. 2. That symptoms of inflammation appeared in both cases about forty-eight hours after aspiration, continued till first menstruation set in, then subsided, but returned with great severity at third menstruation after operation. "It may be inferred that at the two menstrual periods, which were attended by exacerbation, ovulation occurred in the ovary adjoining or containing the cyst, while the intermediate menstruation was associated with ovulation in the other ovary." Dr. Jacobi points out that the danger in these cases must be due to entrance of germs into the cysts at the time of aspiration, and brings forward experiments by Koch to show that it takes a certain time to kill the germs, concluding by remarking that the aspirator needle should be inserted in a 5 per cent. solution of carbolic acid at least forty-eight hours before use.

The best deduction from such cases is not to tap *per vaginam*, but to do ovariotomy.

Percy Baily.

6. **Karl Braun on Twelve Cases of Porro's Operation.**—The indication for operation was contraction of the conjugate below 6 ctm.—in nine cases due to rickets, in three to osteomalacia. In eleven cases the stump was treated extra-peritoneally, with eight recoveries and three deaths, or a mortality of 27·27 per cent. One case, in which the pedicle was dropped, ended fatally. The incision into the uterus was made in eight cases before raising it through the abdominal wound; in four cases, after this had been done. The latter procedure gave the better results. In the last four cases the operation was performed before labour had commenced—which has the advantages, that the operator can choose his own time, and the cervix is intact.

The points of importance in the operation are the following:—The time chosen is just before labour commences; the patient has a bath and a purge the day before; the room is disinfected with sulphur and the spray, but the latter is stopped before the operation commences. Instruments and sponges are cleansed in 1 to 20 carbolic solution before the operation; during it, a solution of 1 per cent. thymol is used. To close the wound, carbolised silk ligatures, and silver-wire with button-plates, are required; the thermo-cautery is kept in readiness. The patient is anæsthetised with a mixture of chloroform and ether. The abdominal surface is shaved and cleansed, the bladder catheterised, and the vagina douched. The operator and assistants wash thoroughly with carbolic solution beforehand, but use 1 per cent. thymol during the operation. The abdominal incision is made, and bleeding points secured by forceps. The uterus is exposed, and an elastic ligature thrown round the cervix. The uterus is cut into, the child extracted, and the cervix grasped with the fingers and thumb to control hæmorrhage until a wire ecraseur is thrown round it and the elastic ligature tied. The loop of the ecraseur is now adjusted so as to grasp the cervix on the proximal side of the elastic ligature. The uterus is cut away without removing the placenta. The pedicle is transfixed with a needle, the stump cauterised, and the abdominal wound carefully closed round it. Special attention is given to cleansing the peritoneum.

Porro's operation is to be preferred to Cesarean section, because the uterine wound (in the latter operation) cannot be closed with sutures so as to ensure that septic matter will not pass into the peritoneal cavity. The mode of suture proposed by Sänger is ineffective for this purpose. "In Cesarean section the practitioner requires the simplest and most certain mode of operating, and this, at our present stand-point, is that introduced by Porro, with the modifications of Müller, Hegar, and Veit."

A. H. F. Barbour.

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## REPORT ON DISEASES OF CHILDREN.

1. **Riegel, Franz.**—Zur Lehre von den Hysterischen Affectionen der Kindern. (On the Hysterical Affections of Children.) *Zeitschrift f. kl. Med.*, vol. vi. (1883) p. 453.
2. **Silfverskjöld.**—Fall von Psychose nebst Simulation bei einem Kinde. (Case of Insanity, together with Simulation in a Child.) *Archiv. für Kinderheilkunde*, Band 4, Heft. 7 und 8.
3. **Henry, Frederick P.**—A Contribution to the Study of Icterus Neonatorum.—*Archives of Medicine*, vol. x. No. 2, October, 1883.

4. **Tomkins.**—CLINICAL FEATURES OF TYPHUS FEVER IN CHILDREN. *British Medical Journal*, 15th December, 1883.

1. **Riegel on Hysterical Affections of Children.**—In this article the author details five cases of paraplegia in children, which resemble each other in the rapid and satisfactory effect which followed treatment. The first of these was a boy of twelve, who, eight weeks before coming under observation, had suffered from a feverish attack, accompanied with pain in both knee-joints. The fever was of short duration, but the joints remained painful after its disappearance, and the pain continued gradually to increase. After a time, the pain left him, but the knee-joints were constantly flexed, and could not be straightened on account of the excessive suffering which attempted extension occasioned. On examination at the end of eight weeks, it was found that the knees were not abnormal in shape, that the knee-jerk was normal, and the cutaneous sensibility not affected. An attempt to extend the limbs was not persevered in, owing to the pain it occasioned. On the following day, it was found that when the attention of the patient was completely diverted, the flexed limbs could be straightened without any special suffering. When the boy saw that the legs were extended, he manifested great astonishment. He was set on his feet, but feared to walk; but on the application of a Faradic current to the back he ran across the room, showing a slight uncertainty of gait, but nothing further. For weeks previously he had only moved with the help of two crutches. The cure was permanent. In commenting on this case, Riegel excludes the possibility of simulation on apparently satisfactory grounds. He cannot, he says regard it as an example of Russel Reynolds's 'paralysis dependent on idea.' It was, he thinks, a pure case of hysterical paralysis and contraction.

The second case (of a boy) closely resembled the first, excepting in its origin, which was a severe attack of typhoid fever. There was less pain in the knee-joints, and the treatment, which was closely similar to that already described, was equally effectual.

In the third case (also a boy), the paralysis followed an attack of measles and bronchitis. The symptoms were similar, excepting that there was no pain, and that a hysterical convulsive attack occurred while the patient was under observation, and the treatment was immediately followed by recovery.

In the fourth and fifth cases (girls), the paraplegia came on without any previous attack of fever. In its character it was in each instance similar to that already described, and the recovery, though not so rapid, was equally satisfactory.

Cases of hysteria in children are rare, especially in boys; and of those previously recorded the majority have been complex, being more of a hystero-epileptic character than pure hysteria. The value of Riegel's observations is, therefore, considerable, in that his cases were so uncomplicated. On the psychical treatment of such cases Riegel lays much stress, urging that the physician must not only obtain the full confidence of his patient, substituting, as it were, his strong will for the weak will of his patient, but he must also remove him from his ordinary surroundings, and have him fully uninfluenced by outside conditions. This is, he thinks, best carried out in hospitals.

J. GRAHAM BROWN.

2. **Silfverskjöld on Case of Insanity, together with Simulation in a Child.**—This case of temporary insanity, accompanied by symptoms of hydrophobia, which appear to have been simulated, is of sufficient interest and rarity to justify its record.

The patient was a previously healthy boy, twelve years of age. He seems to have shown much talent at school, and nothing peculiar was noted in his habits and manners.

In the beginning of April, 1882, he was attacked by a dog. His trousers were torn, but no wound of any kind was discovered. It ought to be mentioned that several years before he fell from a tree, receiving a severe contusion on the head, from which, however, no evil consequences resulted. After having been attacked by the dog, he did not seem frightened, and related quite calmly the occurrence to his parents; and, after his return home, went to church, and in the evening partook of a hearty supper, went to bed, and fell asleep. Towards midnight he began to moan very much, and his parents failed to awaken him. At 8 A.M. he awoke, and began to grind his teeth, moan, strike about with his arms, howl and bark like a dog, and attack his father, and behave otherwise like a violent maniac. He seemed to have lost his reason altogether. He partook of solid food, which he masticated and swallowed well, but from the first showed an aversion to fluids. The further progress of the case was watched with great care by the author, who had the advantage, at this period, of consulting with Dr. Nilsson. The symptoms of hydrophobia became more developed. When offered a glass of milk, he shook his head and motioned it away, but at last took it, and made an effort to swallow. Immediately the countenance altered, and assumed a painful expression—the milk ran out of the mouth, the chin protruded, and the muscles of deglutition became tonically contracted. He touched the throat as if in agony. At first the patient was able to speak; but six days after the commencement of the attack he became dumb, only uttering a groaning sound at times. These attacks recurred at intervals for eleven days, when he gradually improved, reason returning, and all the symptoms of hydrophobia disappeared. Still he was speechless. After this he was affected with attacks of restless excitement, with a desire to injure himself. Sometimes the arms and legs were thrown into violent spasms; at the same time he made efforts to dash his head against hard objects. The dog, which had been under constant observation from the first, was found healthy, and quite free from rabies. The unfortunate condition of the child remaining unchanged, he was now admitted into hospital, 26th June, two and a-half months after the commencement of the attack. He was carefully examined, and the further progress of the case attentively watched. In the case-book he was described as a well-developed boy of average intelligence. Physical examination revealed internal organs healthy. The senses, with the exception of speech, were intact. He could not be induced to utter a word. Pricking with pins did not cause any suffering. At this period of the case Dr. Silfverskjöld began to suspect simulation. The treatment was purely expectant, and he was closely watched night and day by skilled attendants. The first night he was in hospital he commenced clenching his fists, writhing with his arms, and stretching out his legs, the head at the same time being moved to and fro. When interfered with he attempted to bite. He kept his eyes firmly closed during the attack, which lasted about twenty minutes. The following morning he appeared quite well, only suffering from tightness and pain over the sternum. On 27th June he had a similar attack, which was witnessed by the author, who observed that, during his convulsive movements, he seemed to take particular care not to hurt himself or strike any hard object. A week now elapsed without any further attack, still he could not be induced to speak. On 6th July, Faradisation was applied to the region of the neck. He cried loudly, but did not at first speak. Ultimately he uttered the word "nein," and afterwards "ja." He was told the treatment would be repeated next day. He now began to speak and utter such words as "doctor," "father," "mother." Speech gradually returned, and on 13th July he was dismissed cured. The author states he has not met with or heard of an exactly similar case. He doubts not that simulation was present to a great extent in the one just related. He admits that it is difficult to understand how a child who had only heard, perhaps casually, of hydrophobia, could imitate all its symptoms. He adds, however, that it is certain that he was not bitten by the dog, and equally certain the dog was not rabid. He considers it probable that his insanity may have been caused by unpleasant dreams, which induced simulation.

3. **Frederick P. Henry on the Study of Icterus Neonatorum.**—The author defines icterus neonatorum as a "discoloration of the skin, appearing from two to five days after birth, varying in hue from slight sallowness to a decided yellow, disappearing gradually in about two weeks, unattended by any marked symptoms of constitutional disturbance." In this definition he says is excluded "all cases of congenital imperfection of the biliary passages, all inflammatory affections of the liver and gastro-duodenal catarrh;—in a word, all cases of jaundice by obstruction." He proceeds to consider whether there is any other form of mechanical jaundice than that by obstruction, and if so, whether this affection ought to be so classed.

The varieties of jaundice are arranged etiologically under three headings:—

I. *Mechanical or Hepatogenic form*, produced when from any cause increase of pressure obtains in the bile ducts, thereby favouring flow of bile into lymph and blood vessels. He considers it doubtful whether jaundice can be produced by converse conditions—viz., diminished blood pressure in the portal vein.

II. *Hæmatogenic or Chemical form* produced by the presence in the blood of substances causing disintegration of the red blood corpuscles, which is generally followed by jaundice. Water, it is known, causes jaundice when injected into the veins. Poisoning by phosphorous, malarial vapours, and the bites of snakes, are known also to produce the same effects.

III. *Jaundice by Suppression*, so long advocated by Harley and others, and denied now by many, especially by Wagner. That form of jaundice where pigment is accumulated in the blood, due to imperfect action of the liver, may be considered, he thinks, *hepatogenic;* the other, in which an excess of pigment is formed, more than can be separated by a healthy liver, should be put under the heading *hæmatogenic.* He considers jaundice by suppression an unnecessary and arbitrary division. Most, if not all the cases put down under this heading could, with more correctness, be placed under either the hepatogenic or hæmatogenic divisions, in which, he thinks, further research will include one or other of the causes of every case of icterus.

He shows that hepatogenic jaundice can be produced by *absolutely* increasing the bile pressure by ligature of the hepatic or common duct, or *relatively* by cutting off a portion of the portal blood supply. "This latter experiment," he says, "is performed in the case of every human being by ligature of the umbilical cord." The portal blood pressure is lowered, and where jaundice results, it is only necessary to prove that the number of red blood cells (pigment carriers) has not been reduced, in order to settle the question of the mechanical origin of icterus neonatorum. Dr. Henry has done this by counting the number of red blood cells in new-born children. In the cases examined, it was found in two well marked cases of jaundice, one presented a considerable increase, the other an almost equal diminution in the red cells a few days after birth. In a third case, a remarkable decrease in the red corpuscles occurred, and no jaundice. These experiments seemingly dispel the idea which favours the hematogenic origin of icterus neonatorum. The next question requiring answer is, If the icterus be not of this variety (hæmatogenic), why does it not occur after ligature of the umbilical vein in all new-born infants?

Admitting these foregoing facts, our author proposes the following explanation, believing, as he does, that these cases may be classed under the heading mechanical or hepatogenic:—"The degree," he says, "of immediate interference with the portal circulation produced by ligature of the umbilical cord, depends both upon the anastomosis of the umbilical vein with the veins of the abdominal wall, and upon the vigour of the cardiac contractions. Where there is a free anastomosis and a vigorous heart, the intravascular blood pressure in the hepatic lobules may be maintained to such an extent as to prevent the absorption of bile, and *vice versa.*" He alludes to the well-known fact of the preponderance of cardiac force in new-born children—1 to 120 as compared with 1 to 160 in adults—as a natural provision of force for the opening up of new circulating channels called for by the changes in circulation and respiration which take place after birth. The variation in the amount of icterus in infants is readily explained by the greater or lesser amount of venous anastomosis, and the more or less powerful nature of the cardiac contractions. He concludes his observations by stating his belief in the mechanical or hepatogenic cause of icterus neonatorum, from the known fact of alteration in portal blood pressure produced by ligature of the umbilical cord.

4. **Tomkins on Clinical Features of Typhus Fever in Children.**—Certain variations in the clinical features of typhus in children are here noted from the author's experience in the Monsall Fever Hospital. He finds that as a rule the disease runs a milder course in children. The initial symptoms are less marked, and the subsequent fever in his experience is accompanied by a temperature seldom rising above 103°. The most characteristic peculiarity he noticed was a lethargic and torpid condition in many cases after the first three or four days, the patient often lying for hours in a state of dull, heavy stupor. During this period the temperature remained steady, but showed a gradual tendency to fall, and often became normal by the eighth day, the patients thereafter convalescing rapidly. He notices the interesting fact which Dr. Holt of New York alludes to in his recent work, of the same condition occurring in malarial fevers in children. Our author goes on to note the variations in the rash, which is often difficult to distinguish at all, and when it is distinct often remains out only three or four days. Our experience in the Edinburgh Children's Hospital very much coincides with that of Dr. Tomkins as to the general mild course of the disease, with absence of delirium, and scantiness of the eruption. We have not observed such well-marked stupor and lethargy, although drowsiness is sometimes present, and also deafness, often amounting to total abolition of the function of hearing, which slowly returns during convalescence. This, indeed, is a remarkable and frequent feature in typhus in our experience. The pathology of the condition seems obscure.

JAS. CARMICHAEL.

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## ORIGINAL ARTICLES.

## CLINICAL LECTURES ON GIDDINESS.

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### LECTURE I.

GENTLEMEN,—We have frequently met with giddiness as a prominent symptom in cases which we have studied in the wards, and I promised that I would take an opportunity of discussing the subject in the lecture-room, illustrating my observations by cases which I might be able to show you or to describe. I find it useful, sometimes, to take up a symptom in this way rather than to discuss individual cases or groups of cases, as we usually do in this lecture-room.

Giddiness is a sensation with which we are all familiar; but which it is difficult to describe. Its essential feature is the feeling of uncertainty of our position in space relatively to surrounding objects. Sometimes one feels as if objects were whirling round more or less rapidly; sometimes one seems to be moving in the midst of them; and that apparent movement may be round a vertical or a horizontal axis, to one side or other, forwards or backwards; or there may be a sensation of sinking downwards; or the movement may appear confused or irregular. It may also be slow or rapid.

Giddiness is often associated with other disorders of sensation, such as nausea, deafness, tinnitus aurium or other subjective sounds, dimness or other changes of vision, faintness, palpitation, hallucinations, and is sometimes followed by loss of consciousness. But it is constantly associated with impairment of equilibriation. This is readily explained when we consider that it is the result of derangement of a function essentially related to equilibriation,—disturbance of equilibriation being, so to speak, the motor aspect of the sensation of giddiness. For equilibriation we require the co-ordinated action of many groups of muscles. This coordination is, like others, guided by sensory impressions, and these impressions are derived from different sources.

Neither the power of equilibriation, nor the power of appreciating the impressions by which it is guided, is inborn in man. Each is gradually developed by processes of education. The senses which are trained to subserve it, are touch, sight, the muscular sense, probably an articular sense, and a visceral sense, along with the great organ of special sense for equilibriation—the semi-circular canals. Of some of the impressions we are conscious, of others not. Of sight and touch impressions we habitually take cognisance, or at least we may do so; of the other kinds of impressions we make use without any act of intellectual perception. It is at once apparent how sight subserves the purposes of equilibriation, and it becomes especially noticeable when the other sources of sensory impressions are impaired. You have often seen this in cases of locomotor ataxia. You have noticed how helpless the patient becomes when his eyes are closed. The importance of touch, and particularly plantar touch, is equally familiar to you, being often illustrated in the same class of cases. The impairment of the muscular sense, I have sometimes shown you, is at least as important as those already mentioned. The articular and the visceral are less obvious, but I think are real. I shall not dwell upon them; but the special sense for equilibriation, which has its seat in the semi-circular canals, requires fuller notice.

Let me remind you of some anatomical facts and physiological explanations. The canals are situated in the petrous portion of the temporal bone. They are three in number, and communicate by means of five openings with the vestibule. Each canal has a dilated or ampullary end, and each by its ampullary end opens into the vestibule, while two of them have their non-ampullary ends united, and communicate with the vestibule by a common opening. These canals occupy different planes, and are known as superior, posterior, and horizontal, according to their position. Within the bony labyrinth there is a membranous labyrinth, the membranes being much smaller than the canal, except at the ampullary ends. Between the bony canal and the membranes is the perilymph, with connective tissue, blood-vessels, and nerves. Within the membranous canal is the endolymph. A branch of the portio mollis of the seventh nerve is distributed to a crescent-shaped ridge near the middle of each ampulla. The terminal nerve-structures are hair-like cells, which project into the endolymph, and which must obviously be affected by changes in it. Through the chain of bones the labyrinth is connected with the tympanum. The handle of the malleus is fixed into the tympanum, while its head articulates with the incus. The latter, again, is connected with the stapes as well as with the posterior wall of the tympanum. The stapes is fixed into the fenestra ovalis, and by its movements produces alterations in the state of the fluids in the whole labyrinth.

In 1828, Flourens discovered that the semi-circular canals have something to do with the maintenance of the equilibrium of the body. He found by experiment that section of a membranous canal was always followed by movements of the head, or even of the body, rotating about an axis at right angles to the plane of the divided canal. On section of the horizontal canals, the animal moved its head rapidly from side to side, and tended to spin round on a vertical axis. When the posterior canals were cut, rapid movements backwards and forwards took place, and the animal showed a proclivity to turn somersaults, from before backwards. When the superior vertical canals were cut, similar movements occurred; but the tendency now was to turn somersaults from behind forwards. Section of all the canals induced peculiar irregular movements. The movements always became worse if the animal was excited or disturbed. If one side only was cut, the abnormalities gradually subsided; if the canals of both sides were injured, the derangement of motion was permanent. These were clearly not the mere results of irritation, seeing that the symptoms continued long after the external wounds had been healed.

A great advance was made by Goltz when he suggested, in 1870, that pressure of the endolymph gives rise to sensory impressions, and that, according to the position of the body, the pressure varies by gravitation in different portions of the series of canals. He showed that the sensory impressions bear an important relation to equilibriation, and that by altering these impressions he could produce results similar to those which follow section of the canals. He fixed the heads of pigeons in peculiar positions, tying, for example, the head down upon the breast, and found that equilibriation was thereby impaired.

The next advance was made by Cyon in 1872, who repeated and confirmed the former observations, and formulated the theory that from the semi-circular canals we derive impressions as to the position of our heads in space, each canal being definitely related to one of the dimensions of space; that these impressions guide us in equilibriation; and that failure of equilibriation may be due to disorder of their functions.

In 1875, Professor Crum-Brown published an interesting account of some experiments which he had made upon the subject. He pointed out that if the body be passively rotated, one can, with the eyes bandaged, determine pretty accurately the amount of movement made; that if such passive movements be continued beyond a certain time, the feeling is lost; but that if the rotation be suddenly arrested, the sensation of rotation continues. He suggested the theory that the sensations are due to alterations of pressure in the endolymph, not from mere gravitation, as had been supposed, but from the formation of currents in the endolymph, that fluid being conceived to lag behind in the rotational movement of the head. He pointed out how well such a theory suffices to explain the facts discovered by himself, as well as those previously known. Moreover, he remarked, that as each canal has but one ampulla, and as the same organ of sense can produce sensations differing in quantity only, and not in quality, it is probable that one canal will respond only to the rotation round one axis, and in one direction, because the sensation of rotation in the opposite direction is qualitatively different. Hence he concluded that the semi-circular canals are paired organs, and that each canal corresponds only to rotation in a single direction. The same theory was promulgated independently, and at about the same time, by Professor Mach of Prague, and Breuer of Vienna.

Some later experiments of Cyon throw doubt upon this kinetic theory, but cannot be held, in my opinion, to have disproved it.

You perceive, then, that we have abundant proof that the semicircular canals are sensory organs subserving equilibriation, and that we are gradually acquiring definite ideas as to how their functions are performed. Besides these peripheral structures which guide us in our equilibriation, there are, of course, conducting fibres and nerve centres which subserve the functions. Changes in any part of these structures may suffice to produce the sensory and the motor abnormality. We shall first consider the peripheral causes of giddiness, and then those due to changes in the conducting fibres and nerve centres.

In normal equilibriation we guide ourselves by information derived from all the peripheral sources to which I have referred, and in normal conditions they all harmonise, the information derived from sight, from touch, from the muscular sense, from the labyrinth, all correspond. When they do not, giddiness results. Observe, then, that peripheral giddiness is usually due to *contradictoriness of sensory impressions.*

Sometimes the contradictoriness is due to external conditions. This is especially true regarding sight. If you visit the famous Leaning Tower of Pisa, you will most likely experience, as you ascend and descend its stair, a peculiar, uneasy feeling of slight giddiness. On experiencing this sensation, it occurred to me that it was probably due to contradictoriness of impressions derived from sight, and from the other sources of impression guiding equilibriation; and I found that it was so, for, by slightly altering my attitude, the feeling at once disappeared. In the tower there were three others along with me, all of whom felt the same uneasiness, and all were freed from it by altering their posture very slightly. I am satisfied from what I saw when there, and from what I have heard since, that that peculiar giddiness is felt by very many people. Some of you may have visited, and many of you will hereafter visit, the famous tower. When you do so, you will be able to verify what I have told you.

But you have all had opportunity of observing another variety of the feeling—what we may term cliff or tower giddiness. A large proportion of people suffer more or less from an uneasy feeling of giddiness whenever they stand upon a tower or a cliff, or even a steep stair or a hillside. This is due, I take it, to contradictoriness of impressions. They have been accustomed, under ordinary conditions, to receive simultaneously impressions from the plantar surfaces, from the muscular, articular, visceral, and labyrinthine structures, with visual impressions of solid ground before them; but when standing on a tower or cliff, they find the visual impressions contradicting the others, and so the peculiar feeling arises. The liability to this kind of giddiness varies in different individuals, and is determined by the sensitiveness of the nervous system, on the one hand, and by the degree in which the individual has been accustomed to trust to visual impressions for equilibriation, on the other. You will find the feeling aggravated if you look downwards to where, according to experience, the solid ground should be, and absent or diminished if you look in other directions. Some people are so sensitive in this respect that they cannot with comfort sit in a gallery of a church or theatre; some of you may feel that you cannot with comfort occupy the front gallery seat in the new Practice of Physic Lecture-room in the University.

A very curious condition, manifestly allied to this, was described a few years ago by two eminent authorities, and is coming to be known to the profession as "Agoraphobia." Benedikt described it in 1870; Westphal in 1872. Its essential feature is, that while the subjects of it can walk quite well in a narrow lane, or even in an ordinary street, they become uneasy, and experience either giddiness or a peculiar feeling allied to it, when they attempt to traverse a wide market-place or square, such as narrow lanes often open into in continental towns.

Let me describe by way of illustration one of Westphal's cases. The patient was a commercial traveller, aged thirty-two, of middle height, slender, healthy-looking and mobile, and complained that he suffered greatly when he tried to walk across open squares; when he attempted to do so, a peculiar uneasiness, situated mostly in the head, but attended by violent action of the heart, was induced. On attempting to cross a square he felt as if it were miles wide, and often he trembled all over; the more he approached to the houses at the side the less was his uneasiness; a stick was no help to him, but walking arm in arm in lively conversation helped him considerably. If absorbed in thought, he could sometimes accomplish the feat; if he kept close to a carriage crossing the square he could manage pretty well; he had to deny himself the pleasures of the Thiergarten, and could not by any effort make his way to Charlottenburg (a public garden and favourite promenade in the neighbourhood of Berlin). The same uneasiness was felt in some measure if he had to walk beside a blank wall or when the shops were shut. He usually supped in an eating-house, and had to help himself home by ingenious devices; he waited till he saw people going in his direction, and followed them up, or he followed closely behind a conveyance. When asked what he would do if left without any of these external guides, he said that the very thought appalled him, but that he would probably throw himself on the ground, and hold on by the grass. In his frequent journeys he had constantly to avail himself of stratagems of war, so as to be prepared under any circumstances to get assistance. On entering theatres and churches a similar uneasiness occurred at one time; but that difficulty disappeared. He could sail without much discomfort in a large vessel; not in a small boat; and could only walk at the sea-side in places where the houses come close to the shore. He lived in constant dread of these uneasy feelings. He described them as differing from giddiness and from the feeling experienced when looking from a tower. He benefited by moderate use of alcoholic stimulants. The disease began in his twenty-seventh year. The nervous system was not otherwise abnormal; but there was a slight want of symmetry of the two halves of the body. There was no marked history of nervous disease in his family.

In this patient it will be observed that there was abundant evidence of the peculiarity of the nervous organisation; but the point to which I wish to draw your attention is the inability to walk across an open square, and the peculiar sensation experienced by the patient. Benedikt speaks of the sensation as giddiness, and although Westphal has drawn a distinction, as this patient did, between ordinary giddiness and this special uneasiness, I think we are warranted in believing that the feelings are closely allied.

Various explanations of the condition have been attempted, but none of them seems to be quite satisfactory. A reasonable explanation of one element of the trouble lies, I think, in the supposition that these patients, with the nervous system morbidly sensitive, have from some peculiarity acquired the habit of guiding themselves in their equilibriation by reference to near vertical lines; and that, when these vertical lines are awanting, they feel as others do when standing on the edge of a cliff. Notice the fact about the methods they devise for getting across squares. If they can get behind some vehicle, they can walk well enough; the vertical line of the vehicle suffices to guide them.

I have met with one case of another condition allied to these. I know a lady who experiences great discomfort if she sits in a building with a lofty ceiling. She always requires to sit under a gallery in church; and the explanation is, that to her it is essential that she should have the impression of a plane not far off above her head. In these forms of giddiness you observe that, on the one hand, we have certain nervous susceptibilities more or less pronounced, combining with certain external conditions to induce this sensation. I shall now refer to some causes of giddiness with which you are probably all more or less familiar, as they occur in a large proportion of people when placed under certain conditions.

There is, first, the giddiness resulting from rapid rotation,—the waltz giddiness. This appears to be due, not so much to the contradictoriness of impressions, as to powerful impressions made upon the special centre for equilibriation, the rotation producing changes in the semi-circular canals, well explained, as we have seen, by the kinetic theory of their function. Every one naturally becomes giddy with rapid rotation, and with this, under ordinary conditions, equilibriation fails. But one may be trained to equilibriate, notwithstanding the labyrinthine impression. All physical education consists in learning to co-ordinate muscular movements. In learning to waltz, the child has not only to learn to co-ordinate certain groups of muscles, but has to learn to do so while he is receiving misleading impressions from sensory organs on which he is accustomed to rely. He has to guide his movements by the plantar, muscular, articular, and other impressions, and to time them by the music, disregarding his labyrinthine impressions altogether.

Swing-giddiness is not unfrequently experienced by children when they are enjoying that exhilarating amusement. The giddiness you will find, if you analyse it, is due to a variety of causes. There is obviously the constant changing of the visual impressions. But this is not all. The feeling is most marked when the swinger is descending. Now, during the descent, a very peculiar visceral sensation is experienced. It appears as if the body, as a whole, descended at a greater rate than the abdominal viscera, and as if they followed, and as they followed, a certain friction took place between the peritoneal surfaces—the visceral sensation being attended by a quite peculiar uneasiness. It is probable that, in the cranium and in the semi-circular canals a similar action may take place; but these we cannot so readily determine as the visual and the visceral impressions.

In sea-sickness, with its attendant giddiness, we find many elements contributing to the result. There are visual impressions—some very susceptible persons becoming affected even when they look at the sea; but every one who suffers from it feels his discomfort increased if he watches the varying elevations of the bulwarks of the vessel and the surrounding waves, and feels the better of looking another way, or of closing his eyes. But in this condition also the visceral impressions are most important. As the vessel sinks into the trough of the wave the body seems to descend as in the swing, the viscera appearing to sink downwards at a slower rate than the body generally. And here, as on the swing, this is attended by a terrible uneasiness. I suppose that one of the great advantages of the sea-sick invalid laying himself down at full length is that he thereby diminishes the visceral movement. With the labyrinthine impressions also the nerve centres must be sorely puzzled, for from moment to moment the impression varies as the vessel rises or sinks, or rolls from side to side. The muscular sense, also, is brought into most unusual conditions, as is also the articular sense. But one other source of sensory impressions is also at fault, for the plantar pressure varies from moment to moment. At one moment, as the vessel sinks into the wave hollow, it seems as if the vessel were falling from beneath the feet, and there is almost no plantar impression; and then, again, as the vessel rises, the pressure becomes greater. In such conditions it is clear that the sensorium receives a great variety of ever-varying and contradictory impressions.

But giddiness may be due to abnormalities of the sensory structures themselves. Notice, first, some ocular causes. In illustration of this I shall recount to you a typical case seen by some of your predecessors. When I first took charge of the clinical wards as professor, I found a patient who was unable to walk or even to stand on account of fits of giddiness, with which he was frequently seized. On examining him I found no evidence of central nervous disease, but observed that when he took his giddy turns there was always a rapid oscillating movement of his eyes. It occurred to me that this oscillation or nystagmus might cause the giddiness, and I held his eyes fixed by slight pressure. This cured the giddiness in a moment, and while it was kept up the giddiness never recurred. On further inquiry I found that the patient was a miner, and that his case was a typical one of what has been described as Miner's Nystagmus. The patient continued under observation for some time, but no good was done except by the mechanical treatment. The giddiness in that case was manifestly not due to any central disease, but was simply a result of the contradictory impressions resulting from the movement of the eyes. The disease is now pretty well known. It is due to spasm from long continued muscular strain—is indeed a form of trade spasm. The miner while at work lies on his side, and opens up the coal-seam above and beyond his head. He works also in a dim light. He has, therefore, to strain his eyes greatly, and to keep them in an unnatural position, and this nystagmus, with its attendant giddiness, occasionally follows.

You may ask me whether nystagmus always induces giddiness. Certainly it does not. It sometimes is merely associated with giddiness, the two depending upon a common cause, as in cerebellar disease. Sometimes, again, it results from cerebral disease, sometimes from disease of the retina, sometimes from disease of the cornea occurring in childhood. In such cases giddiness does not result, because the sight is so much impaired that the patient learns not to be dependent on the visual impressions for guidance. This is especially the case when the cause comes into operation in early life.

Paralysis of the external rectus, when of recent origin, frequently leads to giddiness from double vision; and even if the one eye be closed, a sensation of vertigo is experienced, because the muscular sense contradicts other impressions. You will often see this fact illustrated in the eye wards; but I may mention an example of it which occurred in the case of a patient whose illness I shall describe to you later on in connection with intra-cranial lesions. The patient, a young man of nineteen, naturally of robust constitution, and a rather eminent university athlete, had sustained an injury to the head, and soon afterwards observed that he saw double, and had a constant feeling of giddiness. He soon discovered that if he closed one eye, his giddiness disappeared. It was manifest, then, that the giddiness resulted from the contradictory ocular impression due to squint, which again in its turn was due to paralysis of one of the ocular nerves. The test which I should advise you to apply in such a case is the simple one of getting the patient to close one eye; if this cures the giddiness, you may be quite sure that it is of the nature we are now considering. Paralysis of other muscles of the eye may, of course, lead to the same results.

I must defer till next lecture an account of the most important of all the peripheral forms of giddiness, that due to alterations in the semi-circular canals—Ménière's Disease.

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## THE STATISTICS OF TRACHEOTOMY FOR CROUP AND DIPHTHERIA.

By Arnold Hirst Watkins, M.D., M.R.C.S.

(*Continued from page* 235.)

### Statistics Previously Published.

I AM unable, through want of space, to give particulars, except in the abstract form in which they will appear farther on; but the details will be found in the following original papers in which they appeared:—

In the *British Medical Journal*, for 10th April, 1880, Dr. G. Buchanan has published details of 50 cases of tracheotomy for croup and diphtheria with 19 recoveries. In the same journal for 1879, vol. ii. page 286, are 6 cases with 2 recoveries, by Mr. W. Thompson.

In the "Lectures" by the late Professor Spence, third edition, page 882, he speaks of having performed tracheotomy for croup and diphtheria 103 times, with 34 recoveries; but I have only been able to obtain details of 23 cases, which were published in 1861-63.

In the *Medical Times and Gazette*, for 1859, vol. ii. page 219, are 6 cases with 1 recovery, by Dr. Conway Evans; and at page 405 of same work are recorded 15 cases of tracheotomy with 4 recoveries, said to be for true croup, in the following hospitals:—St. George's Hospital, 6; Dreadnought, 1; Metropolitan Free Hospital, 1; Hospital for Sick Children, 3; King's College, 1; Middlesex Hospital, 1; St. Mary's Hospital, 1; and Addenbrooke's Hospital, Cambridge, 1. In two of these the age is not given.

In the *New York Medical Record*, for 1880, commencing 3rd July, Dr. Ripley has published 35 cases with 8 recoveries, giving ages but not nature of disease.

In the *American Journal of Obstetrics*, for May, 1868, is published a tabulated form of 166 cases, with 39 recoveries, by Professors Jacobi Krackowizer and Voss, also giving ages but not giving nature of disease.

From the reports of some of the London hospitals, I have gathered together the following cases:—

Table of Cases from St. George's Hospital Reports.

| | | | | |
|---|---|---|---|---|
| 1877 | | | | |
| 1 | M. | 4 Years, . . | Pseudo-membraneous Disease, . . | Died. |
| 2 | F. | 8 " . . . . | Do. . . | Recovered. |
| 3 | F. | 3 " . . . . | Do. . . | Do. |
| 4 | M. | 3 Years 6 Months, | Do. . . | Died. |
| 5 | F. | 4 " . . . . | Do. . . | Do. |
| 1878 | | | | |
| 6 | F. | 2 " . . . . | Do. . . | Do. |
| 7 | F. | 5 " . . . . | Do. . . | Do. |
| 1879 | | | | |
| 8 | M. | 3 " . . . . | Do. . . | Do. |
| 9 | M. | 1 Year 1 Month, . | Do. . . | Do, |
| 10 | M. | 2 " 3 " . | Do. . . | Do. |
| 11 | F. | 6 " . . | Do. . . | Do. |

Cases from St. George's Hospital Reports (*continued*), in which Age is not given.

| | | | |
|---|---|---|---|
| 1868 | Tracheotomy for Croup, . | 1 Case, | Fatal. |
| 1873 | do. Laryngitis, . | 1 do. | Died, 1 |
| 1874 | do. Croup, . | 2 do. | do. 2 |
| 1875 | do. Croup, . | 2 do. | do. 2 |
| | do. Diphtheria, | 2 do. | do. 2 |

TABLE OF CASES OF TRACHEOTOMY FROM ST. BARTHOLOMEW'S HOSPITAL REPORTS—AGES NOT GIVEN.

| | | | | |
|---|---|---|---|---|
| 1869 | Diphtheria, . . . | 1 Case, | ... | Died, 1 |
| | Croup, . . . . | 3 do. | Recovered, 2, | do. 1 |
| 1870 | Diphtheria, . . . | 2 do. | ... | do. 2 |
| | Croup, . . . . | 3 do. | Recovered, 1, | do. 2 |
| 1871 | * Laryngitis, . . . | 1 do. | ... | do. 1 |
| 1872 | Croup, . . . . | 2 do. | ... | do. 2 |
| 1873 | Do. . . . . . | 1 do. | Recovered, 1 | ... |
| 1874 | Do. . . . . | 3 do. | ... | do. 3 |
| 1875 | Diphtheria, . . . | 2 do. | ... | do. 2 |
| | Croup, . . . . | 2 do. | ... | do. 2 |
| 1876 | Diphtheria, . . . | 2 do. | ... | do. 2 |
| | Croup, . . . . | 6 do. | Recovered, 1, | do. 5 |
| 1877 | Diphtheria, . . . | 1 do. | ... | do. 1 |
| | Croup, . . . . | 3 do. | Recovered, 1, | do. 2 |
| 1878 | Diphtheria, . . . | 3 do. | ... | do. 3 |
| | Croup, . . . . | 2 do. | Recovered, 1, | do. 1 |
| | Acute Laryngitis, . . | 1 do. | ... | do. 1 |
| 1879 | Diphtheria, . . . | 5 do. | ... | do. 5 |
| 1880 | Do. . . . . | 13 do. | Recovered, 4, | do. 9 |
| | Membranous Laryngitis, . | 1 do. | ... | do. 1 |
| | † Simple Acute Laryngitis, | 4 do. | Recovered, 4 | ... |

TABLE OF CASES OF TRACHEOTOMY FROM ST. THOMAS'S HOSPITAL REPORTS—AGES NOT GIVEN.

| | | | | |
|---|---|---|---|---|
| 1872 | Laryngitis, . . . . | 1 Case, | ... | Died, 1 |
| 1873 | Diphtheria, . . . | 1 do. | ... | do. 1 |
| 1874 | Do. . . . | 1 do. | ... | do. 1 |
| 1876 | Do. (membranous croup), . | 2 do. | ... | do. 2 |
| 1877 | Diphtheria, . . . | 2 do. | ... | do. 2 |
| 1878 | Do. . . . | 11 do. | Recovered, 1, | do. 10 |
| | Laryngitis, . . . . | 2 do. | ... | do. 2 |
| 1879 | Acute Laryngitis, . . | 2 do. | Recovered, 2, | ... |
| | Croup and Diphtheria, . | 4 do. | do. 1, | do. 3 |
| 1880 | Do. do. . . | 10 do. | do. 3, | do. 7 |
| 1881 | Do. do. . . | 12 do. | do. 4, | do. 8 |
| | Laryngitis, . . . . | 3 do. | do. 1, | do. 2 |

In order to get at the general average of recoveries to operations, we will add these cases together, as follows :—

(A.) CASES HITHERTO UNPUBLISHED.

| | No. of Cases. | Recoveries. |
|---|---|---|
| Edinburgh Hospital for Sick Children, . . | 10 | 1 |
| Edinburgh Royal Infirmary, . . . | 16 | 4 |
| Chalmers' Hospital, . . . . . | 4 | 1 |
| Glasgow Royal Infirmary, . . . . . | 13 | 1 |
| Arnold H. Watkins, . . . . . | 6 | 1 |
| Great Ormond Street Children's Hospital, . . | 141 | 29 |
| | 190 | 37 |

---

* Not stated whether acute or chronic.

† Ages of these cases not given; but as by the report only 2 cases of laryngitis under five recovered, and 1 between five and ten, evidently half, and probably more of these cases, were over five years of age.

### (B.) CASES PREVIOUSLY PUBLISHED.

| | | |
|---|---|---|
| Dr. G. Buchanan, | 50 | 19 |
| W. Thompson, | 6 | 2 |
| Professor Spence, | 103 | 34 |
| Conway Evans, | 6 | 1 |
| *Med. Times and Gazette*, 1859, | 15 | 4 |
| Dr. J. H. Ripley, | 35 | 8 |
| Drs. Jacobi, Krackowizer, and Voss. | 166 | 39 |
| St. George's Hospital Reports, | 19 | 2 |
| St. Bartholomew's Hospital do., | 61 | 15 |
| St. Thomas's Hospital do., | 51 | 12 |
| | 512 | 136 |

Recoveries in cases hitherto unpublished, 37 in 190, or 19½ per cent. ; recoveries in cases previously published, 136 in 512, or 26½ per cent. Total recoveries in English and American practice, 173 in 702, or 24½ per cent.

The difference shown here between the average results in published and unpublished cases is very marked, and I cannot but think the results shown in the unpublished cases are nearest to what would be the true general average, if it were possible to ascertain it.

But perhaps the most interesting point in connection with these statistics is the analysis of them according to the age of the patients, as in the accompanying tables:—

(*See page* 260).

Adding these two tables together, we get the following general results:—

### TABLE SHOWING PERCENTAGE OF RECOVERIES ACCORDING TO AGE OF THE PATIENTS. UNPUBLISHED AND PUBLISHED CASES ADDED TOGETHER.

| | Recovered. | Died. | Total. | |
|---|---|---|---|---|
| 1 and under, | 0 | 8 | = 8 | Recoveries 0 per cent. |
| 2, and between 1 and 2, | 6 | 66 | = 72 | „ 8⅓ „ |
| 3, and between 2 and 3, | 21 | 91 | = 112 | „ 18¾ „ |
| 4, and between 3 and 4, | 19 | 71 | = 90 | „ 21 „ |
| 5, and between 4 and 5, | 27 | 57 | = 84 | „ 32 „ |
| 6, and between 5 and 6, | 12 | 20 | = 32 | „ 37½ „ |
| Above 6, | 20 | 26 | = 46 | „ 43½ „ |

This shows very markedly the influence of age on the issue of the case. From a uniformly fatal result below one year of age, the ratio of successful cases steadily rises up to six years of age.

Above six I have added all cases together, the number of cases in any given year being small, and the result shows that the operations above that age are still more successful.

Several writers have stated that the results of tracheotomy are principally dependent on the nature of the disease for which the operation is performed—that is, whether croup or diphtheria. I have analysed the

## A.—TABLE SHOWING ANALYSIS OF OPERATIONS, HITHERTO UNPUBLISHED, ACCORDING TO AGES OF PATIENTS.

| | 1 Year and under. | | 2 and from 1 to 2. | | 3 and from 2 to 3. | | 4 and from 3 to 4. | | 5 and from 4 to 5. | | 6 and from 5 to 6. | | 7 and from 6 to 7. | | 8 and from 7 to 8. | | Above 8. | | TOTAL. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died | Recovered. | Died. |
| Edinburgh Hospital for Sick Children, . . | ... | ... | ... | 3 | ... | 4 | ... | 2 | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 1 | = 9 |
| Edinburgh Royal Infirmary, . . . . . | ... | 1 | ... | 4 | ... | 1 | 1 | 1 | 2 | 3 | 1 | ... | ... | 2 | ... | ... | ... | ... | 4 | =12 |
| Chalmers' Hospital, . . . . . . | ... | ... | 1 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 1 | = 3 |
| Glasgow Royal Infirmary, . . . . . | ... | ... | ... | 3 | ... | 6 | ... | ... | ... | 2 | ... | 1 | ... | ... | ... | ... | 1 | ... | 1 | =12 |
| Arnold H. Watkins (Private Practice), . . | ... | 1 | ... | 2 | .. | ... | ... | 1 | ... | ... | ... | 1 | ... | ... | ... | ... | 1 | .. | 1 | = 5 |
| Children's Hospital, Great Ormond Street, . | ... | 4 | 3 | 25 | 7 | 35 | 7 | 23 | 4 | 12 | 3 | 5 | 3 | 3 | 1 | 1 | 1 | 4 | 29 | =112 |
| Total, . . . . . . . . | ... | 6 | 4 | 39 | 7 | 46 | 8 | 27 | 6 | 17 | 4 | 7 | 3 | 5 | 2 | 1 | 3 | 5 | 37 | =153 |

## B.—TABLE SHOWING ANALYSIS OF OPERATIONS, PREVIOUSLY PUBLISHED, ACCORDING TO AGES OF PATIENTS.

| | 1 Year and under. | | 2 and from 1 to 2. | | 3 and from 2 to 3. | | 4 and from 3 to 4. | | 5 and from 4 to 5. | | 6 and from 5 to 6. | | 7 and from 6 to 7. | | 8 and from 7 to 8. | | Above 8. | | TOTAL. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. | Recovered. | Died. |
| Dr. G. Buchanan, . . . . . . . | ... | ... | ... | 7 | 2 | 7 | 1 | 6 | 6 | 5 | 4 | 2 | 3 | 1 | 2 | 2 | 1 | 1 | 19 | =31 |
| William Thompson, . . . . . . | ... | ... | ... | 1 | ... | 1 | ... | ... | 2 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | 2 | = 4 |
| Professor Spence, . . . . . . . | ... | ... | 1 | 4 | 4 | 2 | 1 | 3 | 1 | 3 | ... | 1 | ... | ... | 1 | 1 | ... | ... | 8 | =14 |
| Conway Evans, . . . . . . . | ... | ... | ... | 1 | 1 | 1 | ... | ... | ... | 1 | ... | ... | ... | ... | ... | .. | ... | 2 | 1 | = 5 |
| Fifteen Cases, *Medical Times and Gazette*, 1859, | ... | ... | ... | 2 | ... | 3 | 1 | 1 | ... | ... | 1 | ... | 2 | ... | .. | 1 | ... | 2 | 4 | = 9 |
| Dr. P. H. Ripley, . . . . . . . | ... | 2 | ... | 3 | 1 | 5 | 4 | 9 | 1 | 5 | 1 | 2 | 1 | 1 | ... | ... | ... | ... | 8 | =27 |
| Jacobi Krackowizer & Voss, . . . . | ... | ... | 1 | 7 | 5 | 24 | 4 | 22 | 11 | 23 | 2 | 7 | 1 | ... | ... | 3 | ... | 1 | 24 | =87 |
| St. George's Hospital Reports, . . . | ... | ... | ... | 2 | 1 | 2 | ... | 3 | ... | 1 | ... | 1 | ... | ... | 1 | ... | ... | ... | 2 | = 9 |
| Total, . . . . . . . . | ... | 2 | 2 | 27 | 14 | 45 | 11 | 44 | 21 | 40 | 8 | 13 | 7 | 2 | 4 | 7 | 1 | 6 | 68 | =186 |

cases given above with a view to ascertain the effect of this, as follows:—

| | Operations for Croup. Recovered. | Operations for Croup. Died. | Operations for Diphtheria. Recovered. | Operations for Diphtheria. Died. |
|---|---|---|---|---|
| Edinburgh Children's Hospital, | ... | 4 | ... | 5 |
| " Royal Infirmary, | 2 | 3 | 2 | 5 |
| " Chalmers' Hospital, | 1 | 3 | ... | ... |
| Glasgow Royal Infimary, | 1 | 5 | 1 | 5 |
| A. H. Watkins, | 1 | 3 | ... | 2 |
| Great Ormond Street Childrens' Hospital, | 6 | 19 | 21 | 84 |
| Dr. G. Buchanan, | 6 | 8 | 11 | 17 |
| Professor Spence, | 6 | 12 | 2 | 3 |
| Conway Evans, | 1 | 3 | ... | 2 |
| *Medical Times and Gazette*, 1859, | 4 | 11 | ... | ... |
| St. Bartholomew's Hospital, | 7 | 18 | 4 | 25 |
| | 35 | 89 | 41 | 148 |

Recoveries after tracheotomy for Croup, all ages, 35 in 115, or 26½ per cent.
Do. do. for Diptheria, 41 in 189, or 21¾ per cent.

This shows, it is true, a slightly higher mortality after the operation when performed for diphtheria; and to ascertain what effect this might have on the mortality according to age, I have drawn up the following table, showing the relative number of cases of croup compared with those of diphtheria operated on early and more advanced childhood.

| | Not above 4 yrs. old. Croup. | Not above 4 yrs. old. Diphth. | Above 4 yrs. old. Croup. | Above 4 yrs. old. Diphth. |
|---|---|---|---|---|
| Edinburgh Children's Hospital, | 4 | 5 | ... | ... |
| " Royal Infirmary, | 4 | 2 | 1 | 5 |
| " Chalmers' Hospital, | 3 | ... | 1 | ... |
| Glasgow Royal Infirmary, | 5 | 3 | 1 | 3 |
| A. H. Watkins, | 3 | 1 | 1 | 1 |
| *Great Ormond Street Children's Hospital, | 19 | 74 | 6 | 31 |
| Dr. G. Buchanan, | 7 | 13 | 7 | 15 |
| Professor Spence, | 11 | 4 | 6 | 1 |
| Conway Evans, | 3 | ... | 1 | 2 |
| *Medical Times and Gazette*, 1859, | 7 | ... | 6 | ... |
| | 66 | 102 | 30 | 58 |

The result shows that fewer cases of diphtheria are operated on below four years of age than above that age, so that the markedly higher mortality after the operation in young children is not due to its being more frequently performed in them for diphtheria.

In Dr. Voss' paper on "Tracheotomy," in *New York Medical Journal*, 1860, page 35 *et seq.*, he gives the result of 1232 cases of tracheotomy (principally French), the recoveries being 281, or an average of 22¾ per cent. But as no details are given as to age or disease, and doubt has been thrown on the value of the statistics brought before the Paris Academy, where party feeling at the time ran very high, I have not incorporated them in this paper.

There is another point with regard to the statistics of tracheotomy to which I must in this place briefly refer. It is customary to speak as if all the recoveries from the operation of tracheotomy were lives absolutely saved, and which would certainly have been lost without the operation.

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* Eleven cases marked acute laryngitis and acute laryngeal obstruction, all under four years of age, not included in above.

I wish to place on record here, then, one case of croup and two of diphtheria, in which I have seen recoveries take place without operation, when no one would have hesitated to say tracheotomy afforded the patient the only chance, and in which I should have performed the operation had not circumstances absolutely prevented it.

Dr. Lewis Smith gives in his "Diseases of Children" a remarkable case, which became so desperate that he "greatly regretted tracheotomy had not been performed, and would have prepared for it except for the opposition of the family"; yet this child, nine months old, made an excellent recovery. Would it have done so had tracheotomy been performed? Dr. Corley, at the meeting of the British Medical Association in Cork, admitted that cases had occurred in which he had recommended the operation, and the parents had refused to allow it, and in which the children recovered. Every man long in general practice must have seen such recoveries take place *in extremis*, so that it is difficult to see how the claim above referred can fairly be made even for the late operation; and when performed early, every one must admit that a large number of the cases would have recovered without operation. It is important to bear this in mind, as there is a distinct tendency amongst surgical writers to speak of tracheotomy almost as if it were an operation, such as that for strangulated hernia, without which a fatal result *must* occur, and in which case, of course, the operation would be justifiable, however bad its result; whereas, in considering the advisability of the performance of tracheotomy in any given case, the chances of recovery without operation should always be fairly kept in mind.

I would, in conclusion, then summarise the result of this investigation as follows:—

1. The general average of success after tracheotomy is lower than usually stated, being probably about 1 in 5, instead of 1 in 3 or 4.
2. The general results are slightly more favourable when performed for croup than diphtheria, though the larger proportion of cases of croup, before four years of age, probably renders the effects of the two diseases nearly equal.
3. The condition which influences above all others the result of the operation, is the age of the patient, the operations performed during early childhood being by far the least successful.

Finally, I have great pleasure in expressing my thanks to the surgeons and house-surgeons of the Edinburgh and Glasgow Royal Infirmaries, The Children's Hospital, and Chalmers' Hospital, Edinburgh, and the Great Ormond Street Hospital, London, through whose kindness and courtesy I have been enabled to obtain the statistics I have given from these different institutions.

*Note.*—A more elaborate criticism of these statistics than I have been able to give here, is contained in my graduation thesis in the library of the Edinburgh University.

# *REVIEW.*

**De la Délivrance par Tractions et par Expression.** Par le Dr. ALBAN RIBEMONT-DESSAIGNES. Paris: Octave Doin.

THIS volume embodies a study of the third stage of labour and its management. The author gives, in the first chapter, a sketch of the practice in vogue among accoucheurs at various periods, from the time of Hippocrates to the present. The second chapter is a synopsis of the observations of Ploss, Mondière, Kerr, Engelmann, &c., on the management of the third stage among savage or semi-civilised peoples. The third chapter is entitled "On the Mechanism of the Delivery of the Placenta." After citing the views of Baudelocque, Schultze, Dubois, &c., as to the mode of detachment, he quotes those of Duncan, and proceeds to combat his observation that the placenta after separation presents by its edge at the osinternum. In a series of experiments made by the author and Dr. Pinard, it was found that eighty per cent. presented by the fœtal surface. Their mode of experiment consisted in seizing the presenting part of the placenta by a long pair of catch forceps the moment it presented at the os, and examining the point caught after its escape. But the author does not say where on the fœtal surface the forceps usually caught; and this is essential, as Duncan has shown that the edge may be rolled on itself slightly by the partial attachment of the membranes. Nevertheless, the author is led by these results to believe that the placenta folds on itself transversely, fœtal side downwards. In discussing the mode of detachment the following extraordinary statement is made:—"If one considers what happens in these circumstances (*i.e.*, after the birth of the child) on the surface bounded by the insertion of the placenta, it is evident that all the peripheral points of that surface will tend to approach the centre. The retreat, the diminution of its extent will carry it from the circumference to the centre of the placental insertion." It is mild treatment to characterise this as a pure assumption. It might "be evident" if we grant that the centre of the placental insertion is the centre of uterine retractility; but we have no proof of this whatever, and as uterine retractility, if it exists, must affect the whole organ, it is permissible to assume that the central point, towards which the uterus retracts, may be outside the placental site altogether. Were this the case, it is plain that separation of the placenta in this way would take place, by beginning at one point in its circumference, and sweeping across it to an opposite point; and its being rolled on itself or not would depend on circumstances. The author tries to explain his meaning by the following experiment:—He attaches to a sheet of india-rubber, stretched equally in all directions, a cake of sculptor's clay shaped like the placenta. On freeing the sheet, and letting its elastic retraction act, he finds that it separates from the cake from the periphery to the centre. "It seems to us," he adds, "logical to admit that these things (*i.e.*, the rubber and the clay) may be regarded in the same way as the uterus and placenta." All we can say is, that this seems to us very poor logic. Suppose the rubber sheet large enough, and the clay placed not on the centre, but to one side, it would be found that the detachment began at a point in the circumference farthest from the centre of the sheet, and travelled across to a point opposite its starting-place. But the comparison of the physical characters of a doughy, sticky, inelastic mass of clay with a flexible, semi-fluid, elastic body like the placenta, is obviously absurd, and would be highly misleading were not its fallacy so apparent as to be almost childish.

Moreover, we have got to find a proof that the so-called retraction of the uterus, as distinct from contraction, has any existence. By it can only be meant that the pregnant uterus is kept in a state of elastic distension by its contents, and that when these escape it contracts as a distended Barnes' bag would do. But there is not sufficient elastic tissue in the uterus to render this possible; and were the muscular fibres called on to play this *rôle*, their subsequent contraction would be practically impossible. Nothing which has been advanced proves that the placenta in most cases is not detached by the last pains which expel the child. Illustrative of this chapter, the author gives some tracings obtained by attaching a manometer to the placental end of the umbilical vein. He believes that the curves obtained are due, first, to the retraction, and then to the contraction of the uterus. But he gives no proof to show that they may not all be the result of the uterine contraction attempting the expulsion of the detached placenta.

The other chapters are devoted to a study of the *advantages* of delivery of the placenta by traction on the cord, and the *disadvantages* of placental expression. The former method is advocated in almost every case—the exception-being pathological adherence, contraction of os, grave hæmorrhage, which all demand introduction of the hand into the uterus, and velamentous insertion, which seems to be the only condition warranting expression.

It is to be hoped that it will require stronger arguments than any adduced here to persuade those who practise steady application of the hand to the fundus uteri from the escape of the head to the birth of the placenta, to abandon this procedure. No one will deny that placental expression may be, and often is, abused by undue haste and excessive force; but it is inconceivable that the gentle, properly directed pressure required in the great majority of cases can do harm. And further, it cannot be doubted that so long as the atmospheric pressure is 15 lbs. on the square inch, the dragging of a piston-like placenta through the vagina, unless accompanied by proper uterine compression, must often cause a dangerous rise in the pressure of the uterine veins.

The book is the work of a strong partisan, and gives one the impression of being rather the reflection of the teaching of such men as Pajot and Tarnier, than the expression of an original conception, or the outcome of wide personal observation. Many of the supposed data are mere assumptions, and the deductions are valueless. While it increases our literature, it is doubtful if it adds to our knowledge.

R. Milne Murray.

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# *REPORT ON PATHOLOGY.*

### *RECENT PAPERS.*

1. **Zimmerlin.** — Ueber Hereditäre (Familiäre) Progressive Muskelatrophie. (On Hereditary Progressive Muscular Atrophy attacking Families.) *Zeitschrift f. kl. Med.*, vol. vii. p. 15.
2. **Page, H. W.**—May Tabes Dorsalis sometimes have a Peripheral Origin? *Brain*, Pt. xxiii. p. 361.
3. **Vierordt, Oswald.**—Zur Combinirten Degeneration der Vorderhörner und Seitenstränge des Rückenmarks. (On Combined Degeneration of the Anterior Horns and of the Lateral Columns of the Spinal Cord.) *Arch. f. Psychiatrie und Nervenkraukheiten*, vol. xiv. p. 391.

4. **Wiktorowsky.**—UEBER DAS VERHÄLTNISS DER PRODUCTIV-ENTZÜNDLICHEN PROZESSE ZU DEM ULCERÖZEN IM MAGEN. (The Relation of Formative Inflammatory Processes to Ulceration in the Stomach.) "A Contribution to the Literature of the so-called Round or Perforating Gastric Ulcer," *Virchow's Archiv.*, December, 1883.
5. **Friedländer.**—MIKROKOKKEN DER OSTEOMYELITIS. (The Micrococcus of Osteomyelitis.) *Fortschritte der Medicin*, 1st Dec. 1883.
6. **Mendelsohn.**—DIE INFECTIÖSE NATUR DER PNEUMONIE. (The Infectious Nature of Pneumonia.) *Zeitschrift f. klin. Med.*, vol. vii. p. 178.

1. **Zimmerlin on Hereditary Progressive Muscular Atrophy attacking Families.**—The cases of progressive muscular atrophy detailed in this article are seven in number. Four of these belonged to one family of the name of Loosli, and three to another family named Schuhmacher. The history and symptoms of all these cases are fully described in the text. It is only possible here to summarise very briefly the main characteristics in each set of cases.

In the family Loosli, the four examples of the disease—two daughters of twenty and twenty-five years respectively, and two sons aged twenty-two and twenty-six—showed much in common as regards the onset of the disease and the symptomatology. The affection showed its earliest commencement about the time of puberty. It localised itself in the upper part of the body, and showed a great tendency to attack large muscles (serratus magnus, pectorals, triceps, biceps, and the extensors and supinators of the fore-arm), leaving unaffected the thenar and antithenar muscles and the interossei. The muscles were chiefly affected bilaterally and did not show fibrillary twitching, nor was the sensibility to any degree interfered with. The disease affected one muscle after another, causing them slowly to lose power and to atrophy. Examination with galvanic and faradic currents gave the reactions commonly met with in progressive muscular atrophy.

In the family Schuhmacher, three brothers were attacked with the disease, aged twenty-two, thirty-nine, and forty-two respectively, and in them the affection showed the same peculiarities as those already described.

In discussing the etiology of these several cases, Zimmerlin points out that on tracing back the family history of each set of cases, no history of a similar disease having occurred could be found, nor had there occurred among the progenitors of either family, so far as could be ascertained, any case of neuropathy. In the case of the family Loosli, the author seems to attach importance to hard work as the cause of the affection. This was not the case in the second family.

2. **Page on the Peripheral Origin of Tabes Dorsalis.**—In discussing the peripheral origin of locomotor ataxia, the writer instances the case of a soldier who consulted him on account of a perforating ulcer on the dorsum of the left foot. On inquiring into his history, it was found that eight years previously, while in India, he had suffered from a corn under the metatarso-phalangeal joint of the great toe of the right foot, which had ulcerated deeply, and had necessitated the amputation of the toe. About a year subsequently the same process had occurred in connection with the left toe, which was also amputated, ever since which time he had occasionally been troubled with redness and swelling on the dorsum of that foot, which had at last ended in the perforating ulcer for

which he consulted Mr. Page. This history suggesting a nervous origin, he was carefully tested, when it was found that he was unsteady with the eyes shut, that the soles of the feet were anæsthetic, the knee-jerk completely absent on both sides, the pupils small, unequal, and very sluggish, and that he suffered from darting pains in the legs. Some months later his left foot and leg began to swell, and when the swelling subsided there was found a true Charcot's arthropathy affecting the ankle.

Several cases of this kind are now on record, and the fact that perforating ulcer appears not unfrequently to be an early lesion in cases which ultimately show the true symptoms of locomotor ataxia, raises the question whether the degenerative changes in the spinal cord are not in such cases a direct consequence of the changes in the peripheral nerves. It seems, Mr. Page thinks, not out of the question that in such cases the disease may have really commenced at the peripheral parts of the general nervous system, that the nerve lesion was originally caused by the continuous pressure of the corns, and that the degeneration, spreading upwards, gradually reached the spinal cord.

**3. Vierordt on Combined Degeneration of the Anterior Horns and the Lateral Columns of the Cord.**—The case in which this peculiar combination of lesions occurred was that of a medical man, aged 48, and may be briefly stated as follows:—Clinically the main features were a gradually increasing weakness followed by atrophy of the muscles of the extremities, along with the reaction of degeneration. There was no trace of contracture, and the knee-jerk remained normal. In certain muscles there was complete paralysis along with moderate atrophy. Rheumatoid pains were present. The sensibility was unaffected, and the functions of the bladder and rectum were not interfered with. There were no bulbar symptoms. Death ensued from an intercurrent affection of the lung.

On post mortem examination there was found very well marked degeneration of the anterior grey horns, particularly in the dorsal region, along with degeneration (probably more recent) of the lateral pyramidal fasciculi from the dorsal region to the decussation, but no higher, and slightly of the mixed antero-lateral column. The direct cerebellar fasciculi were normal, and were sharply marked off from the lateral pyramidal tracts. There was, further, degeneration of the motor nerves and of the muscles.

The most important points in connection with these pathological conditions are that the degeneration of the lateral pyramidal tracts could not be traced upwards into the medulla, and that the lesion in the grey matter was of older date than that in the lateral pyramidal fasciculi. The symptoms observed during life confirm this point in that there was first of all paresis, then atrophy and reaction of degeneration; and that at no period did muscular spasm or rigidity occur. This clinical picture could only have been produced in this case by the lesion of the grey substance preceding that of the white, the muscles being first of all so relaxed and atrophied by reason of the affection of the anterior horns that they could not pass into a condition of spasm or rigidity when the lateral pyramidal tracts came to be affected. This, at any rate, is the theory of Vierordt.

Only one symptom was present which could be attributed to the lesion of the lateral pyramidal tracts—viz., the maintenance of the knee-jerk. At one period of the case the jerk was more than usually active, and that may be regarded as having been the result of a very slight commencing degeneration of the lateral pyramidal tracts.

J. Graham Brown.

**4. Wiktorowsky on the Relation of Formative Inflammatory Processes to Ulceration in the Stomach.**—The writer first reports eight cases in which he had the opportunity of examining the stomach after death. In two of these death had resulted from perforation; in three others, from exhaustion resulting from atrophy caused by cicatrisation of ulcers; and in the three remaining cases, from other causes.

He believes the *perforating* ulcer to be invariably the result of chronic catarrh, and in describing its course divides it into two stages.

In the first period there is an ordinary chronic catarrh in the pyloric region, due to local influences; this is very obstinate, and leads to thickening of the mucosa from growth of interstitial connective tissue, and to hypertrophy of glands, this increase causing the mucosa to be thrown into folds. The loose connective tissue of the submucosa is replaced by firm fibrous tissue fastening the mucosa firmly to the muscularis. This condition gradually spreads from the pyloric region over the whole stomach. The new connective tissue interferes with muscular contraction, and at the same time increases the amount of work necessary to empty the stomach, by narrowing the pyloric orifice. Hence there is a gradual muscular hypertrophy, spreading from pylorus backwards, and causing still greater rugosity of the mucosa. At the same time the fibrous hyperplasia extends to the serous coat, involving the intermuscular fibrous bundles; it steadily progresses in the mucosa, the folds of which slowly fill with dense fibrous tissue, and become more and more immovable, the narrowing of the pyloric outlet increases, the muscular coat hypertrophies still more, the rugæ of the mucosa grow larger, and so on till the second stage begins.

In this period the connective tissue commences to contract as in cirrhosis, and as a result the capacity of the stomach diminishes and the folds of the mucosa grow relatively larger, the stricture of the pylorus tightens, and the fundus stretches, and all its coats atrophy. In some limited areas the muscular fibres are entirely destroyed by the sclerosis. At the base of the sulci, between the rugæ, the mucosa atrophies, especially where there is muscular hypertrophy and hyperplesia of the submucosa. A renewal or increase of the inflammatory process leads to ulceration in one of these sulci. The adjacent mucous folds containing healthy peptic glands overlap this ulcerated patch, and the secretion of these glands is poured directly on its surface and confined there. Thanks to this and to the influence of muscular hypertrophy, it enlarges, going on to perforation, unless increased connective tissue formation prevents it, and leads to destruction of overlying glands and the formation of a more or less extensive cicatrix. One after another of these ulcers may form and heal by cicatrisation, the fibrous hyperplasia leading gradually to a fatal termination.

The writer excludes from his description all ulcers due to erosions, hœmorrhages, emboli, abcesses, &c., as he is of the opinion that these of themselves never lead to perforation, the only ulcer which does so being that resulting from chronic inflammation. He refers to experiments on animals where emboli never produce *perforating* ulcers, and thinks that the weak acid contents of the stomach cannot corrode an eroded surface; it is only when the gastric juice is poured directly on such a surface that it can have any effect. The shape of the ulcer is at first linear, owing to its situation at the bottom of a groove, and it becomes rounded or funnel-shaped after the corrosive action of the gastric juice. For a rational therapy he considers it important to remember the conditions influencing the growth of the ulcer—the muscular hypertrophy, the faulty position of the mucosa overlapping the ulcer, and the condition of the glands in this mucosa, not of the glands in the rest of the stomach, and he looks sceptically upon the assurances of authors who maintain the relatively easy curability of these ulcers, suspecting that in many cases where perforating ulcer was diagnosed, no such thing existed.

He instances the successful performance of gastrotomy for this condition by Verneuil, Billroth, and others, and considers its treatment quite within the range of the surgeon—that indeed, as in entropion, to which he compares it, we can only hope for successful treatment by surgical interference. Since he looks upon these ulcers as resulting from fibrous changes, their healing due to a continuance of this process, and finds death resulting at least as frequently from the fibrous hyperplasia as from perforation, more than one ulcer forming, it is difficult to understand how he can regard surgical interference so hopefully.

CHARLES KENNEDY.

5. **Friedländer on the Micrococcus of Osteomyelitis.**—Attention is drawn by C. Friedländer, in the *Fortschritte der Medicin*, for 1st Dec., to a paper published by Director Dr. Struck in the *Deutsche Mediginische Wochenschrift.* In this paper are recorded the results of an inquiry into the relations of certain micro-organisms to acute osteomyelitis, carried on by Dr. Becker in the laboratory of the Gesundheitsamt, Berlin.

The presence of the micro-organisms in this disease had already been demonstrated, and Koch had been able to stain and photograph these organisms, but hitherto no systematic investigation had been carried on to determine their relation to the diseased condition.

Koch's method was adhered to throughout. The presence of the micrococci in the pus, &c., having been demonstrated, it was necessary to cultivate these organisms outside the body in media from which all other micro-organisms could be excluded.

The pus from five cases was taken with such precaution as to ensure, if possible, the absence of other micro-organisms. This pus, which had a peculiar yellow colour and a musty smell, was examined after being stained with methyl blue, and was found to contain numerous micrococci similar to those already described.

Pure gelatine, serum, and potato cultivation were obtained by inoculation with the pus. The pure cultivations on these media were best developed at a temperature of about 30°C., the fungi growing in all cases as orange yellow masses, those on the potato being somewhat yellower than those growing on gelatine. Seen in gelatine the masses are orange yellow, and grow along the line of entrance of the inoculating wire. They make their appearance in the course of one or two days, and then grow very rapidly, a large mass spreading over the surface of the gelatine, which soon undergoes liquefaction, the orange yellow mass still continuing to grow at the junction of the solid with the liquid gelatine.

On the potato the masses of micrococci are of considerable thickness, have a yellower tinge, and have the same peculiar musty smell which is observed in the pus. Micrococci cultivated by these methods present the same microscopical appearance as do those in the pus.

The inoculation experiments on animals were especially interesting, and they throw considerable light on to the conditions necessary for the development of micro-organisms generally. Injection of the cultivated material into the subcutaneous tissues of mice, rabbits, and guinea-pigs produced no results. Larger quantities were injected into the abdominal cavities of similar animals with the result that peritonitis was developed, but there was no trace of any lesion in the slightest degree resembling osteomyelitis. When injected in considerable quantities into the jugular veins, symptoms of "acute toxic poisoning" made their appearance, but nothing beyond. If, however, a bone were fractured subcutaneously or bruised a few days before the inoculation, osteomyelitis of a most marked kind makes its appearance, and the animal becomes heavy and apathetic, loses its appetite, and becomes emaciated, the limb is swollen and tender, abscesses form in and around the bone, and death results at the end of the second week.

Near the fracture the periosteum is stripped off from the bone, and the medullary cavity is filled with the characteristic pus. Of fifteen rabbits so treated, eleven ran the above course, and in three of them dark-coloured "enfarcts" in the lung, "and smaller ones in the kidney," in which were found typical masses of micrococci, made their appearance. Micrococci were also found in the blood and pus.

Another specific infectious disease is thus brought within that ring, which for so long contained only malignant pustule, but into which many are now being grouped—tuberculosis, acute pneumonia, osteomyelitis, &c. All Koch's conditions are fulfilled. The organisms are found in the blood and in the degenerated tissues, pus, &c. These organisms can be cultivated pure in media outside the body; from this cultivation an animal can be inoculated, and a disease like the original disease in all its essential details is the result. This disease, however, is produced only when certain additional elements are brought in. The soil must be prepared for the reception of the organisms, and this can only be done by a break or a bruise of the osteous structures.

The most casual observer will be at once struck by the analogy which seems to exist between this process and that of tuberculosis, and undoubtedly Dr. Becker's researches will throw no small light upon those infectious diseases which have already occupied the attention of Koch and his disciples. Through the kindness of Dr. Becker, my colleague, Dr. Hare and I were enabled to bring over to Edinburgh some gelatine cultivations prepared by Dr. Becker in the course of his experiments. From these we have been able to obtain potato, gelatine, milk, and bread paste cultivations. In each case the growth retains the characteristic appearances, both naked-eye and microscopic, as described by Becker. It may be mentioned that E. Hahm, working in Dr. C. Friedländer's laboratory, obtained similar cultivations in gelatine from a recent case of osteomyelitis—orange yellow masses which caused liquefaction of the gelatine medium.

To these Dr. Friedländer refers in his summary of Dr. Becker's work.

G. SIMS WOODHEAD.

6. **Mendelsohn on the Infectious Nature of Pneumonia.**—The recent demonstration of micro-organisms in the lung in cases of pneumonia makes such an inquiry as Mendelsohn here makes of great interest. Long before the discovery of these organisms observations were made which tended to show that even from the epidemic character which pneumonia occasionally showed it was to be regarded as a contagious disease. Old and new observations are grouped together in this article in a very instructive manner, and it may be of interest to reproduce here the leading parts of Mendelsohn's argument.

(1.) *Epidemic Occurrence of Pneumonia.*—The first observations of this nature were made in Switzerland, where it has for long been noticed that pneumonia would sometimes occur as an epidemic in certain valleys while neighbouring valleys were completely exempted. In 1874 similar observations were made in England by Dr. Wynter-Blyth and others, and in 1877-78 a distinct epidemic of pneumonia prevailed in Florence. Since that time very many similar observations have been made, the last and most important of which is that by Jürgensen on an epidemic of pneumonia in the small village of Lustnau. Out of its population of 1633, no less than 43 persons took pneumonia between January and May. After the 23rd of May the epidemic ceased, and no further case of pneumonia occurred until the 23rd of November. This epidemic was sharply localised. Many other observations which have been carefully put on record suffice to prove that pneumonia does undoubtedly occasionally occur in a distinctly epidemic form.

(2.) *Occurrence of Pneumonia by Direct Invasion.*—Many examples of this are on record. As one instance may be mentioned the epidemic of pneumonia which suddenly broke out in a prison in Kentucky in 1875, when of the 700 prisoners 100 took pneumonia and 25 died. An almost equally striking example of this kind is here recorded by Mendelsohn in the case of a family of 6 persons, of whom 5 took pneumonia in close succession, after removal to a new house.

(3.) *The Contagiousness of Pneumonia.*—Many instances of the direct transmission of pneumonia from one person to another have been recorded, of which one of the most striking is that given by Dr. Wynter-Blyth which occurred in connection with the family of a farmer. The father himself died of pneumonia, and in consequence the family was broken up. The servant, who was perfectly healthy, went to live with a married sister, in whose family pneumonia broke out almost immediately. He also relates another instance of a similar kind in which a young wife who was nursing her father through an attack of pneumonia herself took the disease, was at once conveyed home, and gave the same disease to her husband.

(4.) *The "monas pulmonale."*—The first who described pneumonia as a parasitic disease was Klebs, but since then Eberth, Koch, and Friedländer have given more full descriptions of the form of the special micro-organism. Friedländer's observations have already been fully described in the pages of this Journal, and need not be again detailed. Mendelsohn here describes a case of pneumonia which was under Leyden's care, in which the parasite was demonstrated during life in the following manner:—The needle of a hypodermic syringe was inserted just under the scapula, and pushed through the thoracic wall until it penetrated into the pneumonic lung tissue. A few drops of a bloody fluid were thereby obtained in which, besides blood-corpuscles, numerous large cells were present, which, from their shape and size, indicated without doubt that the fluid came from the lung tissue. Staining with methyl-blue showed the presence of the special parasite in the most distinct way, and it was seen to correspond in its characters with the descriptions of Koch and Friedländer. In another case Mendelsohn was able to demonstrate in presence of the parasite both before and after death, and two very clear illustrations of the "monas pulmonale" are appended to this article.

The remainder of this article is occupied with a discussion of various general points—such as the period of incubation, and the immunity from attacks which certain persons possess,—but into these questions we cannot here follow the author. This paper is a welcome addition to our knowledge respecting the interesting question of epidemic pneumonia.

J. Graham Brown.

# REPORT ON THERAPEUTICS.

## RECENT PAPERS.

1. **Guerder.**—EMPLOI DE LA POUDRE DE SANG DE BŒUF DANS L'ALIMENTATION FORCÉE. (The employment of Powdered Ox Blood in Forced Alimentation.) "Bull. de Thérap.," *Journal de Pharmacie et de Chemie*, vol. viii. p. 366.
2. **Hammond.**—THE TREATMENT OF MIGRAINE. *New York Medical Journal*, 17th November, 1883.

1. **Guerder on Powdered Blood as a Food.**—The very satisfactory results which M. Guerder has obtained by using powdered blood, he attributes to the method of preparation he employed and to the large doses he gave. He recommends that the blood of the ox should be used in preference to that of a sheep, on account of the disagreeable odour of the latter. The blood must be taken fresh, heated for four or five hours on a water bath, and then slowly dried in a current of air at a temperature of 40-45° C. The process requires at least three days for its completion. It may be much hastened by compressing the mass of blood, as it leaves the water bath, between linen cloths, but this is not to be recommended, as all soluble matters are thereby removed, particularly the salts, which are of considerable importance in the use of the blood as an aliment. The blood when dried is to be carefully reduced to a fine powder and then placed in a stove, so as to remove all trace of humidity. This pulverisation does not alter the solubility of the preparation as in the case of gluten, for experiments with artificial digestion showed that the impalpable powder was always dissolved with much greater rapidity than when the blood was only coarsely powdered.

This powdered blood ought to be administered at meal times in a cold liquid,—water, wine, milk, or black coffee,—as heat develops its taste and renders it more difficult of absorption. To children it can be given in some simple syrup. M. Guerder administers, as a rule, three times a-day, a large teaspoonful (7 to 8 grammes) to children, and a tablespoonful (20 to 25 grammes) to adults. These doses are generally well borne, but if the digestion is painful or difficult, a little pepsin may be added. From 70 to 75 grammes of the powder are equivalent to 500 grammes of fresh blood. In using this powdered blood cases are occasionally met with in which the stomach refuses to retain the doses given. Thus, out of fifty-one persons to whom M. Guerder administered this preparation, forty-four took it regularly without any difficulty for many weeks, three vomited it immediately, and in four the doses produced various dyspeptic symptoms. The taste of the blood is objectionable to some persons, but can readily be covered by the addition of aromatics.

2. **Hammond on the Treatment of Migraine.**—Hammond recognises the two well-known types of the disease—the angio-spastic and the angio-paralytic—and describes their symptoms as follows:—

(1.) The angio-spastic (spasmodic or sympathico-tonic) form of hemicrania is the result of spasm of the blood-vessels, by which a state of anæmia of the parts of the encephalon to which they are distributed is produced. In addition to the pain, nausea, and vomiting, noises in the ear, flashes of light, and mental and physical prostration, it is characterised by certain oculo-pupillary and vaso-motor disturbances, which are as follows. During the paroxysm it is sometimes observed that the pupil on the affected side is dilated, while the eyeball is sunk deeper into its socket than in the normal condition. The face and ear on the side on which the pain exists are pale, and cold to the touch, and the temporal artery is contracted and cord-like. When the bulb of a thermometer is placed in the auditory meatus on the affected side, the temperature registered will be found to be half a degree lower than that in the healthy ear. Whatever tends to diminish the flow of blood to the affected part increases the pain, while, on the other hand, whatever increases the quantity of intracranial blood lessens the severity of the attack. Thus, if pressure be made upon the carotid of the affected side, the pain increases, whereas any obstruction to the flow through the carotid of the opposite side gives relief by causing an increased flow through the opposite artery. Ophthalmoscopic examination shows the choroid pale and the retinal vessels small.

(2.) The paralytic form. In this form the arterial coats are relaxed, their calibre is increased, and the phenomena presented are in most cases the opposite of those already described in connection with the first form. On the affected side we find the pupil contracted, the skin red, and the temperature elevated, the temporal artery enlarged, tortuous, and pulsating strongly. The fundus of the eye is of a brilliant scarlet. Pressure on the carotid of the affected side lessens the pain.

Bearing in mind these facts, the treatment of migraine may proceed upon clear and specific principles—in the spasmodic form, to relax the spasm; in the paralytic form, to increase the arterial tone.

In the spastic form Hammond has found galvanism of great service. One pole should be applied over the solar plexus, and the other over the sympathetic in the neck. He recommends that about fifteen cells should be employed, and the current allowed to pass for two or three minutes. In such cases, however Hammond relies more upon other remedies. He gives first of all a hypodermic injection of about a quarter of a grain of morphia, and then administers every fifteen minutes one drop of a 1 per cent. solution of nitro-glycerine either in pill or dropped on a lump of sugar. If a correct diagnosis has been made, this plan he finds to be almost invariably successful. In the intervals between the attacks, Hammond recommends that the nitro-glycerine should be taken for several months, one drop of the 1 per cent. solution being administered three times a-day. In addition, the bromides should be persistently employed for the same period.

In the angio-paralytic form of migraine, galvanism employed as already described is often of great service. Cold to the nape of the neck, and continuous compression of the carotid with the instrument constructed by Dr. Corning, are both very useful. Internally thirty or forty grains of guarana will often, in Hammond's experience, cut short a paroxysm, as also will ten grains of caffeine, or even strong coffee or tea. Better still, however, is a large dose—one hundred grains—of bromide of sodium. Hammond finds that this rarely fails to abort a paroxysm. In the intervals the treatment should consist of the bromides, ergot, and strychnine. In both forms of migraine the stomach and bowels must be carefully attended to, as irregularities may precipitate an attack.

J. Graham Brown.

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# THE EDINBURGH CLINICAL AND PATHOLOGICAL JOURNAL.

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## ORIGINAL ARTICLES.

### CLINICAL LECTURES ON GIDDINESS.

By Thomas Grainger Stewart, M.D.,

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### LECTURE II.

GENTLEMEN,—Our last clinical lecture was devoted to the subject of giddiness, and after describing to you the nature of the sensation, I discussed certain of its causes,—viz., those due to altered conditions outside the body, and those which result from abnormal peripheral impressions. At the end of the hour I was about to explain the relationship of giddiness to diseases of the semi-circular canals.

Of all the forms of giddiness from peripheral causes, the most interesting and important is that group due to causes situated in the semi-circular canals, which are commonly known as Menière's Disease, or Labyrinthine Vertigo. Dr. Menière is superintendent of the Institution for Deaf and Dumb in Paris, and by the light of the discoveries of Flourens in regard to the semi-circular canals, he concluded that many attacks which had been considered cerebral, were in reality due to disease of these organs. In 1861, he brought his observations before the Academy of Medicine in Paris. As a type of this condition, I shall cite to you one of his most striking cases. A young woman travelled on a winter night on the outside of a stage-coach, and was exposed to great cold. She was at the time menstruating. She suddenly became completely deaf. When received into the hospital wards, the principal symptoms were constant vertigo and vomiting induced by the slightest effort to move. She died on the fifth day. At the autopsy it was found that the brain, cerebellum, and cord were free from morbid change. As the patient had all at once become deaf, although she had her hearing perfect up to the time of the attack, Menière removed the temporal bones, so that he might be able to ascertain the cause of the deafness. The semi-circular canals were the only part of the labyrinth that presented any change; they contained a reddish-coloured plastic lymph instead of the fluid of Cotunnius. From such observations Dr. Menière drew his first description of the disease.

That it is not always fatal, the first case which came under my care may serve to show. An apprentice boy was brought into my wards suffering from most of the symptoms of Menière's disease, such as vertigo, faintness, vomiting, and reeling gait, and roaring or humming noises in the ears, with deafness in one ear to ordinary and also aerial vibrations. On inquiry, I found that the illness had been caused by a violent blow on the side of the head which the boy had received when at work. In a few days improvement set in, and in a short time the patient was well. I supposed that, in consequence of the blow, some slight hæmorrhage had taken place into the semi-circular canals, and that the blood so effused was speedily absorbed. Whether this view of the case be correct or not, you will remember that a very speedy subsidence of the symptoms may occur. In some cases, while life is not endangered, the patient continues to suffer for long periods—even for many years—and life is made almost intolerable by the discomfort it occasions.

Some recent writers on the subject, such as Dr. M'Bride, recognise several varieties of Menière's disease. And among these I mention, first, the forms due to *changes in the external ear.* Some people experience all the symptoms of Menière's disease if they have their ears syringed; and often accumulations of wax, or of eczematous secretions, produce the same result, if they be so situated as to press with force on the drumhead.

I show you to-day a patient who has several times consulted me of late. She is fifty-six years of age, and has come complaining of giddiness, pain in the head, with dulness of hearing, a feeling of oppression within the cranium, and a singing or buzzing sound in the ears. Her hereditary and social history are unimportant; but she has lately passed through very severe trials, to which she ascribes her illness. She has two sets of abnormal sensations, one constant, the other occasional or paroxysmal. The constant feeling consists in noise in the ears, uneasiness in the head, deafness, and general discomfort. The paroxysmal consists in severe fits of giddiness, with palpitation, faintness, and coldness. The giddiness is peculiar, in respect that she feels an inclination to fall backwards; and a friend who accompanied her to the Infirmary says that this is not a mere sensation, but that she actually tends to fall back. If she is able to sit down and press the back of her head against anything, the giddiness is at once relieved. Her ears were carefully examined by Dr. Graham Brown, who found that the Eustachian tubes were not readily permeable, while there was a large mass of wax in the right meatus. On this being removed, the buzzing at once ceased; and during the week that has elapsed now since this treatment was adopted, she has felt almost well, and has certainly had none of her paroxysmal attacks. Here, then, is an example of a group of formidable symptoms depending mainly upon a cause situated in the external meatus.

The second group is that due to *disease of the middle ear,* which is generally considered to be the commonest cause of the symptoms. As an illustration, I shall cite the case of a patient who was under my care in the Infirmary some years ago, and in which I had the benefit of Dr. M'Bride's advice and assistance. The following account is in the words of that gentleman:—"W. H., *æt.* fifty-eight, complained of giddiness and staggering. He is a blacksmith by trade, and exposed to sudden changes of temperature; and to this he attributes, in a great measure, his illness. For five years his hearing has been getting gradually worse. Before the patient applied for advice, he had two very severe paroxysms of vertigo, with an interval of two days between them. What occurred on these two occasions seems to have been that the patient felt intensely giddy, heard noises in his head, and lost consciousness. This happened for the first time on a public thoroughfare, and when he recovered his senses he found himself seated and being attended to by bystanders. He then felt sick, and everything round him seemed to turn (direction not observed). He staggered home, and when he got there vomited and fell asleep. On awaking he felt better, and next day went to work, feeling well. On the day following, however, he had a repetition of the attack. Since then the patient has been troubled with constant giddiness and staggering towards the left. A mixture of iodide and bromide of potassium seemed to have little or no effect on the symptoms. Except for the giddiness and staggering, the patient seemed in good health.

"The examination of the ears gave the following results:—Watch (normally heard at thirty inches) not heard in contact with either auricle. Conversation is, however, fairly well heard, and the tuning-fork is well heard in both ears by bone conduction. Tympanic Membranes.—Right membrane opaque, with vascular injection along the handle of the malleus. Anteriorly and superiorly there is a dark atrophic patch. Left membrane indrawn, with well-marked folds. Politzer's method only succeeded in forcing air into the left tympanum. After this, inspection showed the corresponding membrane flattened out, the folds having disappeared. Air could only be driven into the right middle ear through the Eustachian catheter, and auscultation during the process revealed a distant gurgle, indicating probably an accumulation of mucus in the pharyngeal orifice of the right Eustachian tube.

"On the first attempt to inflate the tympana by Politzer's method, a very extraordinary effect was produced. As stated, air only entered the left middle ear; but whereas, before the operation, the patient had great difficulty in standing and walking, even with assistance, after the inflation he declared himself greatly relieved, and was able to walk about alone and unsupported. The subsequent treatment consisted in astringent applications to the throat and nasopharynx, which were in a catarrhal state, inflation of iodised steam into the tympana, and occasional use of the air-bag and Eustachian catheter. The result of this treatment was that in a week or two the only symptom of vertigo left was that looking down suddenly produced slight giddiness. The hearing also improved considerably; that is, he could hear a watch, which was previously altogether inaudible, on the right side in contact with the auricle, and on the left just off the ear. The tinnitus also, from which he suffered, was much relieved."

Commenting upon these facts, Dr. M'Bride says: "Now, this case is perfectly typical of what is often known as Menière's disease in an aggravated form. The vertigo, tinnitus, vomiting, and loss of consciousness were all well marked. The deafness, however, was most distinctly traceable to chronic middle-ear catarrh, pure and simple. There was no organic mischief in the cochlea, as shown by the tuning-fork test, nor in the semi-circular canals, as proved by the success of local treatment directed to the middle ear. Moreover, we could trace the nervous phenomena to deficient ventilation of the left tympanum; for whenever air entered it there was an immediate and marked improvement. It was on that side, too, that there was most evidence of altered intra-tympanal tension in the appearance of the drumhead; and we have before seen that changes of tension in the tympanum produce a more or less corresponding alteration in the endolymph. The case is important as one showing the most marked and aggravated characteristics of Menière's disease, depending upon a curable condition of the middle ear—curable, be it observed, not by empirical inunction of iodine and application of blisters, but by rational treatment directed to recognised pathological condition. I have seen a considerable number of cases where staggering and giddiness depend upon middle ear lesions of various kinds, but none so severe as in this case."

In Menière's first case the symptoms are *due to lesions of the internal ear*. The disorder may supervene in various ways, quite suddenly, as in the case of Menière, or in that of the apprentice boy, already cited; or very gradually occurring in connection with chronic disease. The condition may also be fatal, or it may pass away quickly, or it may last for a long time without endangering life.

With regard to the treatment of Menière's disease, you must seek to determine the particular form of the malady with which you have to deal. If the cause be situated in the external meatus, try to remove it. If it be due to obstruction of the Eustachian tubes, seek to have them opened up. If it be due to changes in the labyrinth itself, much less can be done; but by means of counter-irritants and absorbents good results may be obtained. Charcot has spoken strongly of the advantage following the use of quinine in this disease, and remarks that it often seems to relieve the patient from the humming or ringing sounds which are so often complained of.

Lesions of the spinal cord are not very often attended by giddiness, but in cases of locomotor ataxia it is sometimes much complained of, and I have found it more prevalent in earlier stages of that disease than in the later. It may arise in various ways. Let me describe to you some cases. A very intelligent schoolmaster, resident in a country district in Cumberland, consulted me on account of spinal symptoms. I found that he had for several years had slight symptoms of locomotor ataxia; but that in consequence of overwork preparatory to inspection of his school, a degree of actual paralysis had supervened. This paralysis happily passed off in a few weeks under treatment, but the ataxic symptoms persisted. He told me that he very frequently suffered from vertigo, but, on inquiry, it proved to have been present only when he also had double vision or actual squinting. I show you to-day also a patient suffering from locomotor ataxia. You observe that the gait is distinctly characteristic, and that, when his eyes are closed, he tends to fall. He complains much of giddiness, but this giddiness is cured when he closes one eye. It is a result of the double vision. In these cases then the cause is manifestly ocular, and referable to one of the groups already discussed. But that is not the only cause of giddiness in locomotor ataxia. It seems to result sometimes from changes in the sensory impressions, from other sources, and sometimes perhaps from changes in the brain.

Patients suffering from multiple sclerosis of the brain and cord often complain of giddiness. It may possibly result from the nystagmus, but certainly cannot be referred in all cases to this cause, for it may occur without nystagmus, and be awanting when nystagmus is present. It is apt to occur in short isolated attacks, and without any circumstance which seems fitted to explain it.

Giddiness arises from a great variety of intra-cranial conditions, conditions varying both in respect of seat and of lesion. It occurs from lesions of the cerebellum, the crura cerebelli, the pons, the cerebral peduncles, the corpora quadragemina, and other parts of the cerebrum, and it arises from anemia, congestion, hæmorrhages, softenings, and new formations. At the same time it must be admitted that cases may be found on record of lesion in any one of the above-named intra-cranial structures in which no giddiness occurred, and it is equally true that each of the lesions may be unattended by the symptom.

Sometimes the giddiness appears to be a direct symptom; sometimes it merely results from paralysis, especially paralysis of some of the ocular muscles, attended by double vision. It is certainly most constantly associated with cerebellar disease. The peculiar swaying or staggering gait, like that of slight intoxication, has long been recognised as a feature of cerebellar maladies; and although the staggering is not always, it is very often accompanied by a feeling of giddiness. It is said to be generally increased when the patient opens his eyes, and relieved when he lays hold of anything. It may be present only occasionally, or when the patient is in the upright posture, but sometimes it is present even while he is lying down. As a good typical case of cerebellar disease, I select one which is recorded by Professor Nothnagel as having been observed by himself. W. P., a servant girl, thirty-six years of age, had complained since the beginning of August, 1876, of a frequently recurring feeling of giddiness. It used to come on suddenly, especially when she was walking, or when she rose from her chair, and usually disappeared in a few seconds or minutes. At the same time she used to sway to both sides, but never fell to the ground. From the beginning of September, she had severe pain in the back of the head; from the middle of September she had frequently malaise and vomiting. Later on, she had frequently humming in both ears, and she observed an unpleasant saline taste in mouth and increased thirst. In the beginning of October, Nothnagel examined her, and found that intelligence was normal, that there was almost constant occipital pain, that she always lay on her back, because when she sat up she had giddiness and vomiting. The movements of arms and hands were free and strong. The finer movements were easily performed, even when the eyes were closed. There was no abnormality of the muscles of the face or the tongue. All movements of the limbs were rapid and precise, even with the eyes closed, and the patient knew the position of her limbs, and could point to them. She could walk if she got the slightest hold of anything; but if she were left alone, marked swaying occurred (in no particular direction), with giddiness, choking, vomiting, and the patient tumbled down if not held up. It made no difference whether the eyes were closed or open; without help she could not walk, and even with support she walked unsteadily. When giddy, the patient felt as if objects moved round her. The special senses were normal; the opthalmoscope showed in the right eye slight venous congestion; in the left a normal fundus. During October and November her condition remained unchanged; from the end of December she frequently had epileptiform convulsions and double vision. She died 18th January, 1877, within six months of the commencement of the illness. On the post-mortem examination, the cerebrum was found to be normal. The cerebellum was found to contain several tumours, involving both sides and also the central part. The crura cerebelli and the corpora quadragemina were unaffected. In this case, you observe that giddiness was very pronounced, and that it preceded the occurrence of the other symptoms, was not due to squinting, and must have resulted from the cerebellar disease.

As an instance of cerebellar apoplexy, I shall mention one observed by Dr. Brodribb of Hastings, and briefly recorded in Dr. Wilks' work on the Diseases of the Nervous System. A lady, aged fifty-three, had travelled from London to visit a sick relative, and being depressed in spirits, had recourse, more than once, to her brandy bottle. After her arrival at the house, she went out for a drive, and on her return she could scarcely walk or stand. She expressed a fear that she was intoxicated, having partaken too largely of brandy, and her friends were willing to coincide in this opinion. After a few hours, however, she fell into a state of coma, and died. The post-mortem examination showed a clot of blood of the size of a pigeon's egg in the right lobe of the cerebellum. Dr. Brodribb, on further inquiry, could not learn that there had been any special loss of motion, or any disturbance of the senses, but merely a want of regulating movement, such as is seen in an intoxicated person.

With regard to the cerebellar reeling, you must observe that it is not always associated with giddiness. I lately had the opportunity of studying closely a case which I believe to be certainly cerebellar. A student, nineteen years of age, and who had been remarkably strong, and, as I was told, a leading athlete in his university, sustained an injury to his head about four years ago. At first this injury was followed by no symptoms, but soon there occurred squinting, with double vision and giddiness. This giddiness, he found, as I have already told you, that he could cure by closing one eye, and it disappeared permanently as the squint passed away, in the course of three or four months. From this time he remained free from any unhealthy symptoms, able to pursue his studies and his athletics, until about six months before he came under my notice. He then observed that in walking he occasionally reeled to one side; and people remarked upon the peculiar gait, ascribing it to intoxication. But, while he thus staggered, he felt no giddiness. He noticed that the staggering was more toward the right side, and that his head tended to go in that direction, and forwards; and he felt just as if he were making the extraordinary movement in order to maintain his equilibrium. He became unable to ride because of the tendency of his head to fall forward, a tendency which he could better overcome when on foot than when on horseback. Four months before I saw him, although other people constantly remarked upon his peculiar gait, he was able to go about pretty well; indeed he walked a distance of six miles in deep snow, and appeared to be little the worse of it, so that his muscular vigour was evidently then little impaired. But for a marked tendency to constipation, I found all his organs and functions healthy, except the nervous system. He complained of a feeling of numbness in the limbs after exertion, but sensibility was unimpaired. His sight was good, and the fundus of the eyes normal, but he said that after walking or other fatigue his sight became indistinct. Hearing, taste, and smell were natural. With regard to his muscular sense it was difficult to speak; there was no definite proof of it being impaired, unless it be a proof that he staggered more when his eyes were closed. His skin reflexes were natural, the patellar tendon reflex slightly exaggerated; the organic, not interfered with. His voluntary movements were imperfect in consequence of a tendency to lurch to the right side and his head to pitch forward. He grasped firmly with the hand, but performed finer movements very imperfectly; in particular, could not write well, especially when tired, or when he had been attempting to study. I think that it can scarcely be doubted that in this patient cerebellar disease has occurred, probably as a consequence of the injury sustained four years ago. The gait is quite characteristic, and differs markedly from that of locomotor ataxia. I satisfied myself that he felt no giddiness even when the staggering was pronounced.

Two very interesting cases are recorded by Dr. Fraser, of Paisley, in both of which apparently an arrest of development of the cerebellum had taken place. In one, which proved fatal, the brain and cord were carefully examined, and it was found that the cortical grey substance of the cerebellum was little more than half its normal thickness, and that there were gaps at the surface, probably caused by collections of fluid in the membranes; that the white substance was less reduced in bulk, indeed appeared excessive in proportion to the grey; and that the cells of Purkinjé in the cortex were greatly shrunken and contracted, their processes being indefinite and altered in direction.

The patient had been a healthy child till his second or third year, after which the disease had gradually developed. The first symptom was an occasional slight reel or stagger in his gait. About the age of six or seven this reeling became more marked, and almost constant.

He was first seen by Dr. Fraser, when about twenty years of age. At that time he was employed delivering newspapers. He walked with the gait of a very drunken man, reeling greatly, his body inclined forward, his head thrown back, apparently in constant danger of falling on his face. He was obliged to give up his occupation when about twenty-seven years of age, and was afterwards often seen running forward, then catching hold of a lamp-post, and then again going on. Although he constantly swayed about, there is no mention of giddiness in this case.

In the sister of this patient similar symptoms existed. She was unable to write in consequence of the want of power to make the necessary movements. She could not walk for fear of falling forward. Her disease had slowly advanced as the brother's did. She also was not usually affected with giddiness; indeed, it was never a prominent symptom except when she lay down. She then became giddy, or her sight grew indistinct. If she turned her head the feeling became exaggerated, and often she had visceral sensations, such as a feeling of nausea, but she did not vomit. It is certainly reasonable to conclude that in the female patient the lesion was the same as existed in the brother's case.

Here, then, under certain conditions, severe vertigo occurred, while usually it was not present, and apparently it was not the cause of her reeling.

Ferrier states that division of the cerebellum down the middle line, and lesions which are symmetrical on both sides, do not cause more than slight disturbance of equilibriation. Professor Schiff once showed me in Geneva two dogs on which he had performed cerebellar section. In the one, the gait was very staggering; in the other, the staggering was slight; and he told me that in the former he had injured one lateral lobe, in the latter the two lobes equally.

Ferrier has shown that where the anterior part of the middle lobe is injured, the animal tends to fall forward on his face. When the posterior part of the median lobe is injured, the head is drawn backwards, and there is a constant tendency to fall in that direction. Ferrier satisfied himself on these points by experiments on a monkey, and clinical observation confirmed his experimental results.

In lesions of the crura cerebelli giddiness often occurs, and the patient shows a tendency to fall towards one particular side. In illustration of this, I may cite a case recorded by Friedberg about twenty years ago, and quoted by Nothnagel in his admirable work on the Localisation of Brain Disease. A patient of six-and-twenty was, on 5th October, 1855, struck on the forehead, fell backwards upon the pavement, but was able to walk home. Fracture, with depression of the right parietal bone, was found. On 15th October, symptoms of meningitis set in; the skull was trephined, four weeks afterwards the patient began to go out, and was quite well and able to work until August, 1856. Then he began to have occasional headaches, and they gradually became more severe. In October, attacks of giddiness, often attended by vomiting, came on. On the morning of the 24th of that month, when he got up, and was attempting to walk to the washhand-stand, violent giddiness occurred, and he was turned irresistibly to the left side, so that he could only make his way to the stand moving tumultuously, and in a half circle concave to the right. Next night he was again seized with intolerable giddiness, and suddenly began to turn round in bed on his long axis, from left to right. This was repeated five times. In the course of the same day three similar attacks occurred; first the head was turned to the right, then the thorax, then the under part of the body. When the body had reached the right side, the rotation went steadily on, the extremities sometimes followed voluntarily, sometimes seemed to strive against the movement. The eyes wandered anxiously here and there seeking help. A complete attack lasted only a couple of minutes, as it then subsided. The patient continued to have frequent attacks of giddiness, and the feeling as if he were about to fall to the right, and as if it were necessary to support himself. On November 21st, he took a feverish turn, and his right leg and arm became paralysed. On November 30th, he died. The autopsy showed the cerebrum natural, the left half of the tentorium cerebelli prominent; under the left lobe of the cerebellum a rather fresh blood-clot of about fifteen grammes. There was fracture of the right part of the occipital bone. There was exudative meningitis round the left lobe of the cerebellum, with red softening of its cortical substance; the inflammation of the pia mater extended along the left cerebellar peduncle to the pons, close down to the structure. The tissue of the peduncle was in a state of red softening, with small extravasations to a depth of from one and a-half to two lines; the other parts of the cerebellum, pons, and medulla oblongata were natural. In this case it is reasonable to assume that the giddiness resulted partly from the cerebellar, but probably also from the peduncular disease; the peculiar movements were characteristic of the lesion in the peduncles.

I shall cite another case which has been quoted by many writers, and was originally recorded by Belhomme. A lady of sixty had long suffered from giddiness and weakness of the legs, but was seized one day with an attack which lasted half-an-hour, in the course of which she was constantly constrained to turn round. A fresh attack followed upon great mental excitement. This time the tendency was to turn to the right. The attacks became more frequent, till at last they occurred four or five times in a day. The condition became gradually worse; the attacks assumed a pretty definite character: the patient suddenly lost consciousness, and drew herself together spasmodically; she turned herself with astonishing rapidity, usually to the right, but sometimes to the left. She died of bronchitis nearly ten years after the commencement of the illness. On examination, it was found that the middle cerebellar peduncles both showed a depression, the left more marked than the right, due to growth connected with the bone. On section through the pons, there appeared between the middle and posterior thirds a varicose injection of crescentic shape, the pons itself was one-third smaller than natural; the walls of the fourth ventricle softened and disorganised. In this case you observe that the symptom of giddiness had existed for more than ten years, and considering the character of the changes met with after death, it is reasonable to suppose that it was due to the pressure upon the cerebellar peduncles, although it may be maintained that they were referable to the cerebellum itself.

Giddiness is also observed in some cases of diseases of the *pons varolii*, but I must defer illustrating this fact until the next lecture.

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# THE SENSORY AND THERMAL DYNAMICS OF THE SKIN.

By D. Beattie Bain, M.D.

THE skin is pre-eminently a nervous structure, and is more abundantly supplied with nerve-tissue than any other organ. So completely furnished is the surface with nerves that the body may be said to be entirely invested with a sensory coat of mail, since a needle-point can nowhere be inserted without producing a more or less acute impression of pain. To provide for this enormous nerve-supply, the posterior spinal nerve-roots are consequently found to be very much larger than the anterior, which are destined for the muscles. Sensibility is thus a highly-developed and important function of the skin. By means of this precious faculty, indispensable information is conveyed to our consciousness for our guidance and comfort, for we constantly depend upon it as the connecting link between us and the external world. By it we are enabled to feel the presence and contact of objects, and form a notion of the sensible properties of surrounding matter. Without its aid we would fail to feel the ground we tread upon, or handle the tools of our bread-earning craft, or even the food we eat; and we would be constantly liable to serious injury from all kinds of violence and accident. So that it is absolutely essential for our wellbeing, and even for the maintenance of our existence. By virtue of its special arrangements in the papillæ, its tactile corpuscles, end-bulbs, and Pacinian corpuscles found in the subcutaneous tissue of the hands and other parts, it acts in the body as an organ of special sense, that of tactile sensation. But, through these multiplied modifications of nerve-structure, it conveys impressions which differ from mere touch. There are, in addition, the common sensations of pain, and those of temperature, all which appear to be distinct from each other, and *sui generis*. And the supposition is a plausible one, that since there are several forms of nerve-endings in the skin, each has its appointed kind of impression to convey, and that along a special pathway to the nerve-centres—tactile, pathic, and thermal. For, when a warm body touches any cutaneous area, there are simultaneously produced two distinct sensations—namely, the one of simple touch, which would result although the object were cold, or neither cold nor hot; and also that of warmth, which often follows the impalpable impingement of merely heated air. And, further, Weber proved, by the simple experiment of placing the elbow in very cold water, that a thermal impression results from the direct irritation of end-organs in the sensory nerves of the skin, while by the same irritation pain is referred to other end-organs of the same nerve—in this case, the ulnar at the points of the fingers. Hence three distinct impressions are made on the consciousness by a single irritation—tactile, thermal, and pathic. Weber also found that difference of pressure is felt in a part by equal weights when they are of unequal temperature. Clinical observation, besides, seems to furnish corroborative evidence of this differentiation. In certain abnormal neurotic conditions the tactile perception may be diminished or abolished, while thermal sensation is intact or increased, and *vice versâ*. Cleland, however, has stated his belief that the irritation of external stimuli, however they may differ in character, proceeds along the same nerve-fibres, similarly affecting their molecular arrangement, and passes through the cord by the same route, but on reaching the cerebral cells, variously influences the consciousness.

The sensory nerves of all other parts of the body appear to be incapable of arousing any other impression than that of pain in response to any unusual stimulus. It is in the skin alone that a variety of sensations is occasioned by different irritants—mechanical, chemical, thermal, and pathological. Thus itching, tingling, creeping, tickling, shivering, smarting, burning sensations may all be recognised by the consciousness, and referred to particular parts of the surface affected. However, when an ordinary stimulus becomes excessive, be it a very rough surface, or a strong chemical solution, or a very hot or a very cold substance, the only feeling experienced is pain. And when the epidermis is abraded, the faintest contact or even mere exposure causes only pain. The epidermis is thus serviceable, by interposing non-sensitive matter, in blunting or modifying impressions; and when much hypertrophied, as in the blacksmith's fingers, renders the skin of those parts almost anæsthetic, and useless in the prosecution of delicate manipulations. Nor are all parts of the integument equally sensitive. The detection of an impression is most delicate where the epidermis is thinnest, and especially where the nerve end-organs are largest and most numerous. By Weber's æsthesiometer, two points, with a space of two millimetres between, can be recognised by the sense-organs of the point of the finger, where they are specially developed; while on the back and outer aspect of the middle portion of the limbs, a less distance than sixty-six millimetres may produce an impression of only a single point. This sensibility is capable of education and development; for the blind sometimes arrive at a marvellous keenness of cutaneous perception. The power of temperature perception seems to vary less, although Weber found it to be most acute in the eyelid and least in the trunk, especially in the middle line of the body.

For the adequate and healthy action of the skin as a sense-organ, a plentiful supply of nerve-apparatus and a due circulation of healthy blood through the papillæ, as well as a normal sensory activity of the nervous system generally, are indispensable. A state either of anæmia or hyperæmia of the skin diminishes sensibility to tactile impressions; while anæmia increases the thermal sensibility and hyperæmia diminishes it, which is natural and to be expected. For the thermal sensation is comparative, and not an absolutely constant thing; since what would be cold at one time, will be felt as warm under different conditions, as cold hands will feel luke-warm water hot, while to hot hands it will give the impression of cold. Prolonged exposure to severe cold gradually produces cutaneous anæsthesia, partly by acting directly on the nerve-endings, and partly by diminishing the amount of oxygenated blood in the dermal arterioles; and active exercise or friction, by increasing respiration, and filling the skin with circulating blood, is the truest method of restoring sensibility. This action of intense cold is taken advantage of in practice for producing local anæsthesia and reducing pain—ice, cooling evaporating liquids like ether, ammonium chloride, and menthol having been successfully applied for that purpose. The thermal perception is a valuable means of saving the economy from harm, for by it a "chill" is announced, the evils of which may be at once guarded against by exercise or clothing, or removing to a warmer atmosphere, when a feeling of comfort and wellbeing is experienced, from the return of a free supply of warm blood to the investing and sensitive covering of the body. From injury by excessive heat and corrosives likewise, the possession of this thermal sensation provides a protection. Any degree of temperature between 10°C. and 47°C. can be appreciated as a normal sensation of warmth or cold; but beyond these extremes, pain is the only sensation recognised. The larger the area acted on, the stronger is the impression produced, as proved by placing the finger of one hand and the whole of the other hand into the same basin of hot water. This is apparently from a multiplication of impressions upon what may be called the field of thermal sensation, and is common to all kinds of impressions.

A sensory, as well as a sensory-motor reflex connection obtains between the skin and internal organs. Although the modes and paths of this nervous process have not yet been clearly traced, and are but faintly understood, it cannot be doubted that such sympathy exists. Mental emotion may create the consciousness of a creeping in the skin, just as it may fetch a blush to the cheek; a prolonged play of cold air on the back of the neck may be rapidly followed by pneumonia, which in its turn may be accompanied by herpes; or a drenching may be succeeded by diarrhœa, and a severe burn by intestinal ulceration; while hepatic derangement is often associated with eczema. Ovarian disease is frequently found to be attended with acne, and I have repeatedly observed urticaria alternate with asthma. Tickling the soles induces incontrollable laughter, which may end in convulsions; and a dash of cold water over the abdomen may arrest uterine hæmorrhage. This much is known, that it must be somehow due to the junction of fibres of the sympathetic nerve with the cerebro-spinal nerves; and it is further surmised that in the spinal cord there must exist arrangements partaking of the nature of independent ganglionic centres, which receive and originate impulses from and to the skin, and which also receive and modify impressions between the surface and internal structures. Dumontpallier's recent experiments on acupuncture, and Mortimer Granville's vibration process of treatment tend to justify the hypothesis.

The former found that the local peripheral irritation of a hypodermic injection simply of water relieved pain in a corresponding cutaneous area on the opposite side of the body. Brown-Séquard and Tholozan discovered that a transmission from one side of the body to the other of a local modification of temperature also occurred, the lowering of temperature in one hand being reflected by a similar diminution of temperature in the opposite hand. The beneficial action of counter-irritation may possibly receive a partial explanation by these observations and deductions, and some light may be cast upon the nature of the effects produced by the local application of cold and electricity.

It is a familiar fact, but one sufficiently remarkable to strike every reflecting mind, that men, whether sweating in the tropics or shivering in the Arctic ice, whether passing their toiling lives under the glare of furnaces or compelled to spend their days and nights moving from clime to clime, enduring now the scorching sun, and then the bitterest of wintry storms—nevertheless, under all these diverse conditions, show scarcely any appreciable change of their body-temperature. This is a vital characteristic which man enjoys in common with all mammals and birds, which are therefore termed "warm-blooded," or rather *homothermous*, their blood being of even temperature under every variety of surrounding. Heat is generated in plants by oxidation and de-oxidation in their tissues, but it is so small in amount and held so lightly that it is easily given out by transpiration and radiation. By radiation alone plants at night become even cooler than the air above them, and hence dew is formed upon them. Very similarly all animals except the mammalia and birds produce so little heat and part with it so easily that their temperature is always very little different from that of the surrounding medium. They are known as "cold-blooded," or more correctly, of variable or unequal temperature. The constant standard maintained by the normal temperature of the human body, which is secured most largely by the cooling and protecting influence of the surface-skin, ranges unwaveringly between 36° C. and 38° C. The body is ordinarily in contact with a medium whose temperature is variable, commonly between 30 and 40 degrees lower than blood-heat. Heat is therefore incessantly formed in every part and tissue, with the exception of the epithelial, more or less actively according to the amount of tissue-metastasis; and the heat being as constantly transferred, like the other products of tissue-oxidation, to the circulating blood, is distributed equally throughout the organism, thereby fulfilling a necessity of vital activity and of the maintenance of life. But it is no less a necessary condition that this constantly generated heat shall be prevented from accumulating in the body under any circumstances, but with the other tissue-products be continually eliminated, so that the temperature of the blood may not pass a point which would endanger existence; for it is absolutely necessary for the continuance of all the vital processes that the mean temperature be not departed from. This indispensable dissipation of superfluous heat, and an inhibition both of abnormal rise and fall of temperature by increasing or diminishing the heat-loss of the body, are effectively accomplished principally by the skin. Ordinarily just so much heat is generated in the tissues as can be perfectly removed by the cutaneous surface and other excretory channels. But so fine an adjustment as this of opposing forces, so sensitive a balance between heat-production and heat-loss, which maintains a rigid constancy of temperature, under very wide extremes of condition, have led to the search for, and discovery of, proofs of the existence in the central nervous system of a distinct thermotaxic mechanism. By an arrangement of special nerves, over-production of heat is inhibited when heat-loss is diminished, and hence a high temperature prevented, while the skin at the same time is encouraged to exercise its eliminating function; and on the other hand, heat is more actively generated when withdrawal of heat from the surface is increased, while the conditions of the skin favouring heat-loss are at the same time reduced to the minimum. This knowledge is a distinct and valuable scientific advance, explaining much as to the physiological maintenance and fluctuations of normal temperature, while pointing the way to the means of unravelling the mysteries of pyrexia, and of framing the most effective therapeutic procedure.

(*To be continued.*)

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## *REVIEW.*

**Hospital Construction and Management.** By FREDERIC J. MOUAT, M.D., F.R.C.S., and H. SAXON SNELL, F.R.I.B.A. London: J. & A. Churchill & Co., 1883.

THIS is, so far as we know, the first attempt in the English language to discuss in a systematic manner the arrangement, management, and construction of hospitals. These subjects, which are to a very great extent unknown to the majority of the medical profession, are every day proving themselves to be of more and more importance from a national point of view. The problems of life and death, of health and disease are still unsolved, but the attempt to solve them has led to the discovery of many valuable principles, the practical application of which finds its widest field in the scientific construction of hospitals.

The first part of this most elaborate and excellent work, which has just reached us, consists of two sections, of which the first, on the general principles of hospital construction, is from the pen of Dr. Mouat, a very distinguished medical officer in the Indian service, now connected with the Local Government Board; while the second section, written by Mr. Saxon Snell, contains detailed descriptions of many typical examples of hospitals in various parts of the world; the third section of the work, on the organisation of medical relief in London, will shortly appear.

Dr. Mouat's long hospital experience enables him to speak with peculiar authority in regard to the construction and practical management of hospitals. The general supervision of the concerns of all hospitals should, he thinks, be in the hands of a mixed committee—purely administrative in its functions, and containing amongst its members a certain proportion of medical men. There is no doubt that had the governing bodies of certain of the great London hospitals contained a proportion of medical men, they would not have appeared in the unenviable light in which they have recently shown themselves. The executive control of the hospital ought to be vested in a resident medical superintendent, who should be supreme in regard to all the internal concerns of the hospital, saving only the actual treatment of the sick and injured. That technical knowledge is indispensable for such a position seems most obvious, and it is curious that so patent a fact is not more generally recognised. Dr. Mouat lays special stress upon the keeping of accurate hospital records, the want of which is on all sides sadly apparent. By the collection of carefully-prepared statistics alone can many of the erroneous medical doctrines which now obtain too ready credence be swept away.

The site of an hospital should be in an open healthy district, on a slope sufficient to ensure ready drainage, and the building should stand on a light porous soil of gravel or sand. The hospital should be surrounded by a belt of free space of a breadth at least equal to double the height of the buildings. In regard to ventilation, Dr. Mouat points out that it is not sufficient to ensure that each person in a ward is supplied with an adequate amount of fresh air, but that no matter how perfect the artificial ventilation, the ward must not be over-crowded. He exemplifies this point by means of several very striking instances. The number of beds in a ward, however perfect its ventilation, should never exceed thirty-two. The minimum of cubic space should not be less than 1200 cubic feet, and of floor space ninety-six square feet, for each patient in the ward. Dr. Mouat goes on to describe the various types of hospital construction, two of which—the Friedrickshain in Berlin, and St. Eloi at Montpellier—he specially instances as these which most of all carry the modern theories of hospital construction to their logical result.

The second section of the work, from the pen of Mr. Saxon Snell, contains descriptions of typical examples of the general hospitals of various countries. The details are in each case most elaborately described, and are readily understood when the admirable lithographic illustrations which accompany the text are examined.

It is clear that the greatest care has been bestowed in the preparation of this volume by the publishers, who have done justice to the distinguished ability, experience, and research of the authors, and it is evidently a work which will take a very high place in the literature of the day, and which will long be looked upon as the standard book of reference in regard to all matters connected with hospital construction and management.

J. Graham Brown.

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## *REPORT ON MEDICINE.*

1. **Horsley.**—Note on the Patellar Knee-Jerk. *Brain*, Pt. xxiii. p. 369.
2. **Plessing.**—Ueber Febris herpetica oder Febricula als Infectionskrankheit. (On Herpetic Fever or Febricula as an Infectious Disease.) *Deutch. Arch. f. kl. Med.*, vol. xxxiv. p. 159.
3. **Kirn, Prof.** — Ueber Chloral-Psychosen. (On Chloral Psychoses.) *Berliner klinische Wochenschrift*, 19th Nov. 1883.
4. **Mackenzie, John N.**—On Nasal Cough, and the Existence of a Sensitive Reflex Area in the Nose. (*American Journal of the Medical Sciences*, July, 1883.)

5. **Goodridge.** — THE CONTAGIOUSNESS OF ERYSIPELAS, CONSIDERED WITH ESPECIAL REFERENCE TO RECENT RESEARCHES. *Practitioner*, December, 1883.
6. **Murrell.** — ON THE TREATMENT OF THE NIGHT-SWEATING OF PHTHISIS. *Practitioner*, December, 1883.
7. **Silbermann.**—UEBER SEPTISCHE PNEUMONIE DER NEUGEBORENEN. (On Septic Pneumonia in New-Born Children.) *Deutsches Arch.*, vol. xxxiv. p. 334.
8. **Pelizæus.**—UEBER DAS KNIEPHÄNOMEN BEI KINDERN. (On the Knee-jerk in Children.) *Archiv. für Psychiatrie und Nervenkrankheiten*, vol. xiv. p. 402.
9. **Rummo.**—ETUDE EXPÉRIMENTALE SUR L'ACTION PHYSIOLOGIQUE DE L'IODOFORME. *Archives de Physiologie Normale et Pathologique*, 1883, Nos. 6 and 7.

1. **Horsley on the Patellar Knee-Jerk.**—In this article the author records certain observations on the effect which nitrous-oxide anæsthesia exerts upon the knee-reflex. Chloroform narcosis has been shown by Eulenburg and by Prevost to abolish both superficial and deep reflexes, while with ether the ankle clonus still shows itself. When full anæsthesia was produced by means of nitrous-oxide gas, Horsley found that the plantar and conjunctival reflexes were abolished, but that the knee-jerk persisted.

2. **Plessing on Herpetic Fever or Febricula.**—The author of this article commences by pointing out how authorities differ in the descriptions they give of febricula. He thinks that febricula ought to be regarded, not as one disease, but as a group of diseases, all of them possessing the following main symptoms:—The attack commences suddenly without any prodromata, its onset being marked by a severe rigor, the patient complaining of a feeling of tiredness, headache, and pains in the limbs, the temperature rising quickly until it reaches 104° F., or even higher, and the pulse becoming rapid. The tongue is found to be coated, the appetite disappears, and there is usually constipation, sometimes diarrhœa. The urine is small in quantity and concentrated. These symptoms disappear, usually quickly, their disappearance being coincided with profuse perspiration, and sometimes with the appearance of *herpes labialis*. When these symptoms are considered, it will be observed that they are present in almost every fever. In uncomplicated cases of febricula there is no eruption, no affection of any particular organ of the body, no marked swelling of the spleen. The only characteristic symptom is fever, which begins acutely, rises quickly to a high point, and passes away as rapidly.

Febricula has been ascribed, by writers on the subject, to many causes,—cold, over-exertion, &c.; but it has not hitherto been generally regarded as belonging to the group of infectious fever, or as arising from a specific poison. Certain cases of the affection have recently come under the notice of Plessing, which evidently arose in the last-named manner, and are consequently of some importance, from an etiological point of view. These cases, five in number, occurred in one of the pavilions of the Leipzig Hospital, during the month of November 1882. They all exhibited the symptoms of febricula, and in none of them was there to be found, after the most careful search, any lesion of any particular organ in the body. In four of these five patients the attack only lasted one day, but in the fifth the fever was present for a week. It is particularly noticeable that in no other part of the hospital, with its 500 patients, did any case occur. As all these five patients had been resident in the hospital for some time previously, it was not possible to ascribe the disease to cold, or over-exertion, as Murchison, Wunderlich, and Seitz do, nor could they be regarded as abortive cases of typhus or typhoid, as Griesinger suggests, and this for various sufficient reasons detailed fully in the text. That they were instances of an infectious disease was, however, apparent from the following facts: (1) the cumulative appearance of the cases in about one month in one particular part of a large hospital; (2) the high temperature which rose rapidly and as rapidly fell; (3) the absence of any organic disease to account for the symptoms. On these three grounds Plessing believes, and with apparently good reason, that his cases of febricula were examples of an infectious disorder.

In regard to the fever poison, the small number of the cases observed only allows the following deductions to be made:—

(1.) The poison is not so strong that a healthy person may not readily throw it off without suffering from an attack. There were several other patients in the same part of the hospital who did not take the disease.

(2.) The poison was of such a kind that its presence in the body did not give rise to swelling of the spleen. It is to be remembered that in measles the spleen is frequently not enlarged.

(3.) It cannot be certainly concluded whether the poison is a contagious or a miasmatic one, but Plessing inclines to the latter belief.

(4.) No calculation could be made as to the period of incubation, but the minimum time which any of the patients had passed in the hospital before the attack was two days and a-half.

In conclusion, Plessing points out that he does not mean to argue that all cases of febricula are of the nature of infectious fever. On the contrary, he thinks it very probable that many attacks result from cold, and that some are of a typhoid nature. He holds, however, that these facts justify him in classifying a certain number of cases of that disorder as *febricula infectiosa*.

J. GRAHAM BROWN.

3. **Kirn on Chloral Psychoses.** — The following conditions have long been known as results of chronic chloral poisoning:—Disturbances of the alimentary tract, certain skin affections (*e.g.*, purpura, urticaria), loss of weight, neuralgic pains, mental weakness, and, especially when chloral is exhibited along with alcohol, a peculiar erythematous condition of the face and head. The author of this paper carefully records a case of extreme "chloral-tippling," where, in addition to several of the above symptoms, vivid hallucinations were present. These were chiefly auditory, the patient hearing voices of a more or less threatening nature. In some respects, the course of the affection was similar to that of delirium tremens. Curiously enough, the hallucinations were only present during the day-time. It is to be noted that the symptom developed itself with greatest intensity after the complete withdrawal of chloral hydrate.

4. **John N. Mackenzie on Nasal Cough, and the Existence of a Sensitive Reflex Area in the Nose.**—The occurrence of reflex cough, as the result of manipulation with the Eustachian catheter, and with other instruments in the nasal cavity, induced the author to endeavour to localise the excitable area more definitely. Clinical observation and experiment lead him to conclude—

(1.) That every part of the nasal mucous membrane is not equally sensitive to stimulation.

(2.) That there exists a well-defined sensitive area, corresponding with that portion of the mucous membrane which covers the inferior turbinated body, and more especially its posterior extremity, with the portion of the septum immediately opposite, excitation of which finds its expression in a reflex cough.

(3.) That stimulation of this area is not equally effective in all persons, the difference probably depending on the varying degree of excitability of the erectile tissue.

The clinical evidence in support of his position is as follows :—

(*a*) Where reflex cough exists, the portions indicated above are chiefly, if not alone, affected.

(*b*) Stimulation of this affected portion induces the cough, while suitable local remedies dispel the tendency.

(*c*) Foreign bodies lodged in, or polypi growing from, or implicating this area, cause the cough. If situated elsewhere, the result is negative.

(*d*) Atrophy of the area—*e.g.*, in ozæna—prevents the artificial induction of the cough.

The experimental part of the investigation consisted in the systematic stimulation of all accessible portions of the nasal mucous membrane by means of silver and rubber probes, both from front and from behind, with the aid of the rhinoscope.

5. **Goodridge on the Contagiousness of Erysipelas, considered with Especial Reference to Recent Researches.**—The author of this paper weighs the evidence as to the contagiousness or the non-contagiousness of erysipelas. From his observations: (1) In hospital practice, where he has never known the disease spread from bed to bed; (2) in private practice, where husband and wife have occupied the same bed without a spread of the disease to the unaffected individual; and (3) in his own personal experience, he concludes that a certain number of cases, with all the characters apparently of true erysipelas, are non-infective, and, therefore, rather to be regarded as cases of pseudo-erysipelas. Such cases are generally due to local irritation.

On the other hand, he regards the contagiousness of true erysipelas demonstrated by : (1) the recorded evidence of hospitals, where nurses and attendants have been attacked by the disease ; (2) the experience of medical men in their own persons—*e.g.*, the author being twice attacked by true erysipelas ; and (3) most conclusively by the brilliant experiments of Dr. Fehleisen of Berlin, to which reference has already been made in No. 4 of this Journal. That author has proved the specific origin of the disease both histologically and by the method of pure cultivation and subsequent inoculation of animals and of men. If the proof of contagion by *immediate* contact be certain, there is little reason against believing in a like chain of results through *mediate* contact or aerial infection.

6. **Murrell on the Treatment of the Night-Sweating of Phthisis.**—This paper gives the result of the use of physostigma and of the salts of its alkaloid in fifty cases of phthisis with well-marked night-sweating. The observations were made on patients in all stages of the disease.

Thirty-four were treated with physostigma itself, the dose being $\frac{1}{10}$th gr. of the extract in pill form. In eight of these there was complete arrest of the night-sweating after four or five administrations of one pill each night, at bed-time ; in one case, two pills were required, at bed-time ; and in twenty-four, even better results were obtained by the exhibition of the pills three times during the night. In most cases, the beneficial effect lasted three or four weeks, at the end of which time it was necessary to renew the drug.

The other cases were treated with one of three salts of eserine—the hydrobromate, the salicylate, or the sulphate—all of which were equally effective. In fifteen consecutive cases, a satisfactory result was obtained with $\frac{1}{60}$th grain, in pill form, given three or four times during the night.

Dr. Murrell, while admitting the efficacy of the drug, is of opinion that "there is no reason to suppose that it will take the place of other and better-known modes of treatment."

R. W. Philip.

7. **Silbermann on Septic Pneumonia in Infants.**—The form of septic pneumonia which is met with in new-born children is most frequently associated with septicæmia in the mother. Silbermann believes it to be caused by the drawing into the air passages of septic matter, either from the maternal passages, or from the infected air in the immediate neighbourhood of the mother. It most usually shows itself on the first or second day after birth, and death follows invariably two days later. He found in his own cases, and from an examination of the records of other observers, that the pleuræ were very generally implicated in the process, but that other organs were rarely affected, this being quite contrary to what is usually the case in connection with other forms of septic infection in infants. On post-mortem examination the pulmonary alveoli, as well as the bronchi, were found to be filled with masses of bacteria. He believes that the rapid breathing in of septic material in these cases is due to defective power of closing the glottis, and is favoured by the shortness of the bronchi. The weakness of the expiratory muscles in infants prevents the ready expulsion of such foreign particles.

8. **Pelizæus on the Knee-jerk in Children.**—It has been stated by various observers that in a certain small percentage of healthy persons no knee-jerk is obtainable on percussing the patellar tendon. As regards children this statement was recently tested by Bloch, who found that out of a school of 694 children between the ages of six and nine, the knee-jerk was absent in five cases, and since, in three of these five children, there was a distinctly neurotic family history, he argued that the absence of the knee-jerk indicated a neuropathic diathesis. To control this statement was the object of the inquiry here detailed by Pelizæus. He examined 2403 boys between the ages of six and thirteen, and found that on the first examination there were only six in whom the knee-jerk was not readily obtained. These six children were subsequently again and more carefully examined, when it was found that with a little care the jerk could be produced in all save one; so that the final result was, that out of 2403 boys only one was found in whom a tap upon the patellar tendon did not give rise to contraction of the quadriceps muscle. This one boy was weak, anæmic, and the muscular system generally was relaxed. There was, however, no abnormality in respect of the sensibility of the skin or of the electrical reactions of the muscles. His father was a robust man and his mother had been perfectly healthy up to the time of her last illness, which was some form of blood-poisoning. The family was free from any history of mental or of nervous disease. It thus appears that in healthy children the presence of the knee-jerk is all but universal, but that in certain rare instances (0·04°/$_0$) it may be absent on certain days from some unknown cause.

9. **Rummo on the Physiological Action of Iodoform.**—In the frog, Rummo found that iodoform administered subcutaneously acted upon the heart, diminishing the number of the ventricular contractions until the heart was arrested in diastole. The ventricular power is at first increased, and the contractions are regular and full. Atropine does not modify the relaxation of the heart which iodoform produces, and that drug has no action upon the heart of the frog if the medulla oblongata has been destroyed. At the commencement of the absorption of iodoform the capillaries of the web dilate, but as the action establishes itself more fully a progressive contraction takes place. In mammals, the action of iodoform upon the heart is similar to that already described in the case of the frog. None of these phenomena are observed after section of the vagi.

Iodoform acts principally upon the nerve centres, and secondarily upon the nerve trunks and muscles. In the first stage of its action it exercises a depressive influence upon the nerve centres without affecting the latter structures. There is at first a more or less complete loss of voluntary movement, along with slight anæsthesia and diminution of the reflexes. Subsequently the excitability of the nerves and the muscular contractility are affected. At a later period the nerve centres are excited and tonic convulsions ensue. At the commencement of its action iodoform increases the various secretions, especially the salivary, biliary, and gastro-intestinal. It is eliminated by all the excretory channels in the form of an alkaline iodide. Very large doses produce albuminuria and hæmaturia. The most important structural alterations produced by the administration of iodoform are fatty degeneration of all the organs, glomerulo-nephritis, and acute anterior poliomyelitis. These lesions are carefully described and figured in this article. The changes in the cord are perhaps the most interesting. The vessels of the grey substance were found to be dilated and engouged, and the large multipolar nerve-cells of the anterior horns were diminished in size and altered in shape so as to show as merely small ovoid masses, the nuclei and processes having disappeared. Neither the axis cylinders nor the enveloping sheaths of the nerve fibres are affected.

J. Graham Brown.

## REPORT ON MENTAL DISEASES.

1. **Giovanardi.**—Caso di Anofthalmia Doppia Congenita. (On a Case of Double Congenital Anophthalmia.) *Rivista Sperimentale di Freniatria*, p. 244.
2. **Buccola.**—Sulla Misura del Tempo negli atti Psichici Elementari. (On the Measure of Time in Elementary Psychical Acts.)
3. **Amadei.**—Sulla Craniologia degli Epilettici. (On the Shape of the Cranium in Epileptics.) *Archiv. per l'Anthropologia et l'Etnologia*, xii. 1882, fasc. 3.
4. **Magnan.**—Unilateral and Bilateral Hallucinations. *Chronique des Annales Médico-Psychologiques*, Novembre, 1883.
5. **Mabille.**—Cas de Guérison d'Hallucinations Unilatérales de l'Ouie de Cause Externe. (Case of Unilateral Hallucinations in the Ear caused by a Foreign body.) *Chroniques des Annales Médico-Psychologiques*, Novembre, 1883.

6. **Stedman.**—ON THE EMPLOYMENT OF THE INSANE AND THE LIBERATION OF INSANE HOMICIDES. "Sixth Annual Report of the Danvers Lunatic Hospital for the Insane, for 1883": Boston, 1884.

1. **Giovanardi on Anophthalmia Congenita Duplex.**—In October, 1880, the body of a female child of fourteen months was brought to the dissecting-room of the University of Modena; both the eyes were wanting. She was of the usual size of a child of her age. The hearing had been perfect; she seemed to understand what was said to her, and had begun to speak some words. In short, there appeared no deficiency but blindness. The form of the cranium was symmetrical, the curves on the right side being fuller on the frontal and parietal regions, and less full on the occipital than on the left. The superior occipital fossæ were wanting. A very careful dissection was made by Dr. Giovanardi of the brain and structures within the orbit. The eyelids and lachrymal glands were found normal. The ocular muscles were all found inserted into the membrane which closed the cavity, and which was continuous with the eyelids. The eyeballs were entirely wanting. The nerves of the orbit were also traced, save the lenticular ganglion and the ciliary nerves, which were wanting. No traces were found of the optic tract nor of the corpora geniculata externa and the inferior corpora quadrigemina; but the superior pair were normal. On the upper part of the brain the fissure of Rolando was found to correspond with the coronial suture, while generally it is four or five centimetres beyond it. The occipito-parietal fissure was deep; the occipital lobes were smaller than usual; the three occipital convolutions were not fully developed, especially the inferior ones. The grey matter of these convolutions was found in a normal condition, save that the ganglionic cells were smaller than is common with children of one or two years of age, and that the tissue was infiltrated with fatty granulations.

Dr. Giovanardi considers that the value of his observations consists in the confirmation which this gives to the view, first published by Panizza in 1856, that the optic nerves have one of their deep origins in the occipital lobes. This supports the view advanced by Munk and other physiologists, that we have here the cortical centre of vision. Giovanardi mentions that no more than twenty-three instances of anophthalmia congenita have been hitherto described. In most of these cases there was a careful dissection of the contents of the orbit; but the condition of the brain was not carefully examined or described. In the orbit the optic nerve was found wanting; but the other cranial nerves were generally noticed, though the lenticular ganglion and ciliary nerves were not found. The paper is illustrated with some excellent lithographic plates.

2. **Buccola on the Physiological Time of Reaction with the Insane.**—Dr. Buccola has tried to measure the time between the commencement of a sensory impression and the reaction after the apprehension of the impression in the case of some idiots, imbeciles, and dements. In his experiments, he used the chronoscope of Kipp; to rouse the hearing, he used a bell; and to test electro-cutaneous sensibility, he applied a measured Faradic current to the forehead or the tip of the fingers. It was found impracticable to test the time of reaction to light by Geissler's tube. The shortest period of reaction for hearing was with an imbecile, aged twenty-one years, 0·165; the shortest mean time being 0·282. The longest auditory reaction occurred in the case of an idiot aged forty-nine; it was 1·588, the mean being 0·637. The shortest period of reaction for touch in the imbecile was at 50°, of the battery 0·301; the mean

being 0·456. The highest period of reaction of touch was with the idiot, 1·721; the mean being 1·095.

In one idiot the obtuseness of touch was so great that the experiments could not be carried out. We do not wonder that Dr. Buccola complains of the slow and uncertain reaction in his experiments; in fact, we are doubtful whether these difficulties have been overcome so far as to afford us cyphers like the one-thousandth of a second. In the figures given there is a great difference between the maxima and the minima, the one being three times that of the other. The general result was that the reactions, both of hearing and touch, were much slower than with normal beings, the reaction occupying more time with idiots than with imbeciles.

There was a close analogy observed between the cases of idiocy and those of dementia in the prolonged duration of the period required for perception. The smallest period was always greater than that noted in a normal person, and the length of the period was greatest where the dementia was deepest. There was also the same wide range between the minima and maxima as observed in idiocy. Dr. Buccola found it impossible to study the reactions with the electro-cutaneous stimuli, as sometimes there was no reaction, and sometimes the current frightened the patient. The auditory tests were, therefore, alone used. He found the lowest minimum of reaction to acoustic stimuli to be 0·114, the maximum being 0·318, and the mean 0·159. The highest maximum was 1·690, with a minimum of 0·274, the difference between the two being 1·416, and the mean being 0·566.

With a patient in the second stage of general paralysis, the medium time to acoustic stimuli was found to be 0·189; to luminous stimuli, 0·228; to tactile stimuli, 0·311.

In the next number of the *Revista*, Dr. Buccola has tried to ascertain the period of reaction to painful impressions in general paralytics by observing the dilatation of the oris after the prick of a needle registered by electricity. He found in normal individuals the time of reaction to be from 0·688 to 0·723, from which the time of perception in his own mind, about 0·220 to 0·240, was to be subtracted. Out of fifteen paralytics in seven the reaction failed, but in the eight who could be used for the experiment the period between the stimulus and the dilatation of the pupil was nearly double what it was in the sane. The reaction in the first case given in a general paralytic is 1·191, and 0·920 for the maxima and minima, and 1·191 for the mean. The reaction was also found to be prolonged in pellagrous myelitis from 0·968 to 1·148, and in multiple sclerosis 0·971 to 1·209. In mania and melancholia the period of reaction appeared to be normal. We observe that Dr. Buccola has given to the public some of his laborious researches into the time occupied by psychical actions in a book brought out in the *Biblioteca Scientifica Internationale*, vol. xxxvii.

3. **Amadei on the Shape of the Cranium in Epileptics.**—The late Professor Lasèque, of Paris, had formulated in his mind a disease which he called genuine epilepsy. He gave a lecture on this subject to the Section for Mental Diseases at the International Congress in London. The epilepsy came on about the period of puberty, and was dependent upon an irregular form of the bones of the base of the skull and the union of the sphenoid and occipital bones. This was generally indicated in the living by irregularity or asymmetry of the bones of the face. The epilepsy pursued the patient through life without any modification from treatment, and, according to the learned doctor, was

not generally transmitted to the offspring. In order to test his views, Dr. Amadei, of Imola, has examined a great many skulls. He found that plagiocephaly, with abnormal form of the bones, is sometimes found with those who are not epileptic. Though frequently met with in those who become epileptic at puberty, its occurrence is not invariable. Plagiocephaly is not always accompanied by abnormalities in the form or position of the foramen magnum, and such abnormalities not unfrequently occur in the skulls of those who have never been visited by epilepsy. It may be here remarked that irregularities and want of symmetry in the bones of the base of the cranium, are common in genatous idiocy.

4. **Magnan on Unilateral and Bilateral Hallucinations.**—Unilateral hallucinations have been noticed long ago, especially by Michéa; and, in fact, they are common in any large asylum. They have been carefully studied by Doctors Ball and Régis, and in Scotland by Dr. Alexander Robertson. Bilateral hallucinations have also been described: the organs on one side being affected at different times from one another. M. Magnan has described to the Congress of Rouen a more complicated variety of hallucinations. A patient hears in one ear, and always in the same ear, threats and insulting and abusive expressions, while at other times he hears through the other ear cheerful and flattering words which excite in him a dream of ambition, and this antagonism in the hallucinations of either ear persist during all the disease. M. Magnan has given four observations of this class. In one the exasperating words seemed to come through the right ear, while the flattering words came through the left. In the three other cases the reverse held good. According to M. Magnan, these observations are a new proof of the duplication or functional independence of the two hemispheres of the brain, and they present a great analogy with the results obtained with some hypnotised and hysterical subjects.

Several months ago Dr. Dumont-Pallier presented at the clinical lectures of M. Magnan at Saint-Anne, a patient whom he had hypnotised so that he could produce anæsthesia and hyperæsthesia alternately in each half of the body. One of the cerebral hemispheres appeared to preserve its power of action, while the other was deprived of all activity. By experimental combinations, we are informed, the hypnotiser could make the two hemispheres act at the same time, but in a different manner and in opposition to each other. The patient being deeply hypnotised, he whispered ideas into one ear which gave a sad expression to one side of his face, while he suggested gay ideas in the other, which were shown by signs of satisfaction on the opposite side of the face.—*Union Médicale*, 1883, Nos. 69-71.

5. **Dr. Mabille on a Cure of Unilateral Auditory Hallucinations of one Ear.**—Madame G. had borne three children in thirty-three months. Her confinements had been painful and trying for the constitution, and followed by nursing the children. She felt suicidal impulses on the return of each menstrual period. She become hypochondriacal, listless, and melancholy, with buzzing noises in the right ear, and her sleep was disturbed by hallucinations. She was sent to the asylum of Lafond. Madame G. thus describes her own condition in a letter:—"I felt so much distress that I wished to throw myself into a well. I could not eat, but drank much. At the very beginning, I felt a noise in my ear. The least sound that I heard, my head was like to open, and for fifteen months this mischief in the ear existed. After the superintendent gave me injections in the ear I felt it no longer."

In fact, after the second injection of lukewarm water into the right ear, a hard mass separated from the tympanum. It was found to consist of indurated wax, in the centre of which was a grain of corn. The first night after this relief the auditory hallucinations ceased, and the patient could sleep. The general health also improved, and the melancholy gradually passed away, and she was discharged in good health, after being in the asylum about two months and a-half.

**6. Stedman on the Employment of Lunatics and the Ultimate Lot of Insane Homicides.**—In the last yearly report of the State Lunatic Asylum at Danvers, near Boston, U.S., which contains an average number of 677 patients, Dr. Stedman, the acting superintendent, informs us that he has found brush-making a very useful industry. They require, as a rule, little teaching, and their brushes are in no respect inferior to the samples sent us. The patients employed have been chiefly those who would be inclined to escape if allowed to work out of doors, irritable ones not actually excited, and several who had been formerly considered as too demented to be useful in any direction. Brush-making can be made to answer the same purpose for the men that sewing does for the women. It is so simple a process that the work becomes a habit almost imperceptibly, and in cases susceptible of improvement it may be a germ of the wider interest and the returning self-confidence which are to lead to recovery. Or else, in the mildly acute cases, it may be made the first lesson of self-control.

In a climate like ours, indoor occupations are indispensable if constant employment is to be kept up for insane patients, most of whom cannot stand exposure to all weathers. I have found the making of brushes an excellent method of educating the touch, grasp, and manual dexterity in imbeciles.

There has been some discussion in America whether Freeman, the Pocasset homicide, should be set at liberty, if thought recovered from insanity. Dr. Stedman tells us: "The statistics of the Criminal Lunatic Asylum at Broadmoor, from its opening at 1863 up to the end of the year 1882, show that fifty-six patients who had been committed for murder while insane, and had recovered in the asylum, had been discharged out of custody, and sent, many of them unconditionally, to the care of their relatives. That this practice, so long followed there, has proved safe and beneficial, has been shown by the absence of any recommitments in these cases, with the exception of a few who voluntarily gave themselves up in their fear lest they should again lose their self-control. If, in England, he argues, this practice has proved successful for many years, may not our own community, in one instance, wisely trust its safety to the judgment of those who advise the similar disposal of this man, after long observation of his mental condition and careful study of his case?"

In Great Britain insane homicides are not always sent to criminal lunatic asylums. I know of a case where an insane woman killed another patient in a lunatic asylum in Scotland, and though there was some judicial inquiry, there was no commitment or trial, and the woman was liberated by the medical superintendent on her recovery, without any further question. There is also the recent case of an imbecile lad who killed another in a scuffle. He was given in charge of his parents under their engagement to look after him. See on this subject Dr. Shuttleworth's paper, "Is Legal Responsibility Acquired by Educated Imbeciles?" in the *Journal of Mental Science* for January, 1884.

WILLIAM W. IRELAND.

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## ORIGINAL ARTICLE.

# CLINICAL LECTURES ON GIDDINESS.

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## LECTURE III.

GENTLEMEN,—At the end of last lecture I was about to speak of giddiness as a symptom in cases of disease of the Pons Varolii. But before doing so I wish to show you a typical case of cerebellar disease, which I am able to show you by the kindness of Professor Fraser.

You observe that even as he stands, this patient sways about in an irregular manner. Now, when he attempts to walk he staggers like a person in a state of intoxication, and even when I make him sit down you perceive that he seems inclined to fall in one direction or another, and then to catch himself by a sudden effort. He tells me that he constantly feels giddy, but I find that his giddiness is increased by his movements. If the back of his head is pressed against the wall, or if it is held firmly, so that the jerking is prevented, his giddiness almost, but not altogether, disappears. It is thus, then, in some degree, a consequence of the movements, but it is not entirely dependent upon them. It is due in part to some sensory change.

And now, to return to the Pons Varolii,—I shall cite in illustration one or two cases. Guéniot describes the case of a woman forty-seven years of age, who was suddenly seized with giddiness, with loss of power of speech, and paralysis of the left arm and leg. These conditions persisted. The tongue was paralysed, but there was no difficulty in swallowing; intelligence was good, and there was no affection of the facial muscles or those of the eye. Sensibility was retained in the paralysed parts—apparently rather increased. Death followed in four days. On examination, it was found that the brain was natural, but the pons broken up by clot. On closer examination of the specimen it was found that while the right pyramidal bundle was completely destroyed, the left was scarcely affected. The point of interest for us in this case is the giddiness. It was manifestly a prominent feature, and it was not the result of paralysis of any of the muscles of the eye. No lesion existed excepting that of the pons, and to it the well-marked vertigo must manifestly be ascribed.

Another case may be cited, which was observed by Professor Nothnagel. A syphilitic man of forty-six was seized with headache and giddiness, with tendency to fall to the left side, and loss of consciousness. After two or three attacks of that kind, he was admitted to hospital, a permanent condition having become established: there was no paralysis of face, eye, or tongue, and speech was normal; but there was complete motor paralysis of left arm, and paresis of left leg. Sensibility was unaffected. The reflexes could not be produced in the left arm. For two months there was no change, and in particular no tendency to muscular contracture. Death resulted from pneumonia; and on examination, it was found that a mass of softening, of the size of a hazel nut, was situated on the upper half of the right side of the pons, near the cerebral peduncle. In this case, also, you observe that giddiness was a prominent symptom, and that in a case in which, apparently, softening alone was the change.

It being clear, then, that lesions of the pons itself are capable of producing giddiness, even when double vision is absent, it is scarcely necessary to adduce proof of it resulting in cases where squinting occurs. But such cases have also been observed.

In lesions of the cerebral peduncles giddiness is sometimes seen, but usually it results from squinting due to paralysis of some of the muscles of the eye. Such a case as that which I am about to state suggests that other influences operate here. It is recorded by Rosenthal and quoted by Nothnagel. A woman of thirty-nine had suffered for two years from headache, giddiness, and dimness of sight, with paralysis of the right side. The giddiness was so great that the patient preferred the recumbent position. Severe giddiness set in if, even when recumbent, she turned on her left side. She had paralysis of the third left cranial nerve with paralysis of the lower branches of the facial and of the limbs; on the right, distinct anæsthesia. After death, it was found that a tumour of the size of a pea lay between the crura cerebri. The innermost part of the right cerebral peduncle was softened. In the interior of the left crus cerebri there was a cist of the size of a pea, which destroyed the left third nerve, and another tumour of the size of a bean involved the right oculo motor.

I think you will agree with me in believing that although the squinting may have been a factor in the production of giddiness, there certainly was a further influence in operation, seeing that the symptom was so severe.

In lesions of the corpora quadrigemina giddiness sometimes occurs, at all events staggering gait has been observed in some cases. In illustration of giddiness from this lesion, I select a case recorded by my friend Dr. Duffin, of King's College, London. The patient was a steady and powerful man, and the earliest symptom—a sense of dragging at the back of the neck—occurred about four months before his death. The walk early became unsteady, and there were repeated attacks of vertigo which diminished when the eyes were closed. Headache and contraction of the muscles of the neck and spine were prominent symptoms. Sight soon became impaired, and blindness speedily followed with well-marked double optic neuritis. The intelligence became obscured only about a fortnight before death. He died comatose. The autopsy showed the corpora quadrigemina and the pineal body replaced by a glioma. The right optic thalamus had atrophied from pressure, and the right superior peduncle of the cerebellum was also involved. It is possible that the giddiness was connected with change in the peduncle, but considering that the tumor involved primarily the corpora quadrigemina, and the pineal gland, and that the giddiness was an early symptom, it is more reasonable to refer the giddiness to the altered condition of the corpora quadrigemina themselves.

Besides these distinctly localised intra-cranial causes of giddiness, there are others which seem to act upon the cranial contents generally, —for example, cerebral tumour in any part of the brain may be found to produce occasional fits of giddiness, and alterations of the cerebral circulation induce a like result.

Congestion, whether of active or passive origin, induces giddiness, sometimes to such an extent as to prevent the patient from walking, and often sufficing to render quick turning round a matter of difficulty. In treating such a condition, one must first advert to the cause. If it be passive congestion, seek to remove the obstruction; if it be the result of plethora, diminish the volume of the blood; if it be from over-work, or other undue excitement of the brain, or from a tendency to inflammation, use such remedies as cold to the head, ergotin, the bromides, and perhaps derivatives.

Vertigo is a common symptom in Cerebral Anæmia. It is apt to be induced when the patient suddenly changes his attitude, either by lying down or getting up. Sometimes it is merely what the patients describe as swimming in the head, at others it is well-defined vertigo. It is often associated with neuralgic and other forms of headache. You will meet with it very frequently in cases of chlorosis. Indeed, it is sometimes one of the most troublesome symptoms of that disease. It is also occasionally met with in cases of anæmia due to loss of blood, slight and long continued, as in bleeding hæmorrhoids, or more formidable as in mennorrhagia or other uterine complaints. Sometimes, also, it is seen in the later stages of aortic valvular disease, when the cerebral anæmia becomes pronounced; and sometimes in cases of unexplained anæmia, whether referable to the pernicious variety or not, it also occurs. In these cases, you will find that the patient suffers less (except when special peculiarities come into play) after food has been taken, or after a little alcohol, and that he is sometimes markedly relieved, for a time at least, by the use of nitrite of amyl. The treatment of the giddiness in such cases is, of course, the treatment proper to the variety of anæmia which may be causing it, and usually consists in checking any drain of blood which may exist, and improving the condition of the blood itself. Let me remark in regard to one of these causes —viz., the bleeding from hæmorrhoids,—that you will often have to deal as physicians with this complaint, and that I know of no plan of treatment more successful than that which I learned from Professor Oppoltzer, of Vienna—viz., the regular use of aloes and sulphate of iron. If you will direct your patient to take morning and evening, or three times a-day if it be necessary, a pill containing one grain of aqueous extract of aloes, one-third of a grain of sulphate of iron, and two grains of extract of taraxacum, you will find that free soft motions are produced, while the bleeding as a rule rapidly disappears. In this way your patients may often be relieved without having recourse to surgical treatment. I say nothing of the treatment of the uterine or other hæmorrhages; but should like to accentuate the fact that in the effort to improve the condition of the blood, when our chief remedy, iron, fails, arsenic often stands us in good stead.

Vertigo is sometimes due to mere exhaustion of the nervous system, as from overwork, sexual excesses, and such like; this occurs quite apart from anæmia, is manifestly a result of changes in the nerve centres themselves, and is to be treated by means of rest, good diet, and nervine tonics, chalybeates often proving unsuitable.

Giddiness sometimes results from, and persists for long after injuries to the head. The patient is thrown from horseback, or from a bicycle, and, falling on the head, is for a time stunned; on recovering, he is at first much troubled with giddiness or with headache, and he finds that for months, or for life, he is much more easily made giddy, becoming so under conditions in which previously no giddiness would have occurred. The nervous system has acquired a new mobility of this and of other kinds. You will find that patients who have suffered from sunstroke, even to a slight extent, often exhibit the same peculiarity.

A very distressing form of vertigo is that which is associated with epilepsy. One often meets with such cases in practice. Take as illustration a case regarding which I was recently consulted. A lady, aged forty, sustained an injury to the head about seven years ago. From that time she became subject to attacks, usually merely of giddiness, but occasionally of complete unconsciousness. On examination, nothing was found in the state of the ear or of the alimentary tract to account for the condition, and the only satisfactory explanation was that which referred the process to the category of epilepsy. Such a diagnosis of this can never, of course, be established in the absence of more typical epileptic attacks. The treatment in such a case must consist of careful regulation of diet, the administration of bromides and belladonna, and, in rare cases, operative interference at the seat of injury in the skull. You must also note that the epileptic may have giddiness as a warning at the onset of his attack, sometimes as an aura, sometimes merely as one of the early phenomena of the attack.

In other nervous affections, such as migraine, giddiness occurs. It is not in my experience a frequent symptom, but is met with occasionally towards the end of the first stage, when the ocular or other sensory troubles are nearly passed, and the headache is about to commence. Sometimes it occurs later, when the headache is fairly developed, and the nausea or vomiting has come on. The diagnosis of the cause of the form of vertigo is easy to any one who is acquainted with the features of migraine. The treatment in such a case is of course that applicable to migraine generally; and that again is guided by a study of the cause, whether it be connected with gastric and hepatic derangements, with constipation, or with nervous exhaustion. The mention of each of these causes will suggest to our minds the appropriate remedies; but, in addition, you will find that in many cases the attacks may be warded off by the regular use of the bromides, or of guarana, or chloride of ammonium, or of an alcoholic stimulant, or hyoscyamus, or spirit of chloroform, or even a cup of tea or coffee.

Giddiness is often complained of by old people, particularly those affected with degenerative changes in the arteries, and in such cases is a cause of much alarm, being popularly and justly associated with the idea of a tendency to apoplexy. Whatever may be the precise pathology of this variety, I would have you bear in mind that one very able physician, Dr. Handfield Jones, has found the bichloride of mercury, in small doses, of very great service in such cases.

There is a form of intra-cranial giddiness which you can easily produce experimentally for yourselves,—viz., that described by the late Professor Purkinjé of Prague, as being produced when a constant current of sufficient strength is being sent through the head from ear to ear. If you place the electrodes in the mastoid fossæ, and allow a current of medium strength, say ten or twelve cells, to pass, you will find immediately that giddiness results, external objects appearing to rotate in the direction of the current, while you incline to turn in the opposite direction. It requires a much stronger current to bring out movements of the eyeballs, such as Hitzig has described. It may turn out that these changes are due to an influence exerted on the semi-circular canals; but this seems improbable, both from the locality in which the electrodes have to be placed, and from the occurrence of the nystagmus when stronger currents are employed.

With regard to the diagnosis in cases of giddiness from intra-cranial disease, I should advise you to satisfy yourselves first as to whether there is paralysis of any of the eye muscles or not, and not to conclude that giddiness is due to brain lesion unless other and more characteristic symptoms of intra-cranial disease be present.

The treatment of giddiness from intra-cranial causes other than those already referred to, is not very promising at present. There are some cases in which the lesion being syphilitic, iodide of potassium, or mercury, or a combination of the two, are of great service; there are probably some in which the bichloride of mercury is useful, even when the disease is not due to syphilis; but on the whole, medicine is of little service. Now and then a surgical operation does good by removing some irritating fragment of bone, or by diminishing intra-cranial tension.

Having thus traced the various nervous causes of vertigo with which we are acquainted, I now proceed to describe a number of others which you will find come frequently into operation. Among those we shall take first dyspeptic giddiness. It is matter of common observation that, along with gastric and hepatic disturbance, headache and giddiness frequently occur. But there is in addition a formidable and alarming kind of giddiness, which has been well described by Trousseau in his clinical lectures, and by Dr. Ramskill in Reynolds' System of Medicine. It is known by the name of stomachal vertigo, or *vertigo a stomacho læso.* The case generally presents such features as the following: The patient an hour or two after taking food is subjected to some fatigue, excitement, or emotion, and suddenly becomes very giddy. He reels, perhaps falls to the ground, becomes sick, may lose consciousness, or may simply suffer from a peculiar headache. He seems to himself to be turning over in all directions, or to have currents within his head, which are flowing, in a curved direction, from before backwards, or from behind forwards, or in an irregular manner. Surrounding objects seem also changed. The ground feels to his feet like the deck of a ship on a stormy sea, while other things seem to be constantly changing their position, swinging with jerks upwards or downwards, backwards or forwards; and while he knows that these are illusions, he yet cannot steady himself. Perhaps vomiting takes place; perhaps there is a copious discharge of flatus from the stomach or the bowels; perhaps sudden diarrhœa. Then he becomes almost well, the giddiness passing off, and he is free from the illness for the time. Now, it may be that you find—as Dr. Ramskill found in one of his cases—that the patient has had a hearty breakfast, including sausages and Devonshire cream, or some other things equally difficult of digestion, or the diet may have been perfectly simple. One attack seems to render the patient more liable to the recurrence, and your patient may give you the history of many seizures of varying severity.

This form of vertigo may be transient, or may be persistent for a time. Some years ago I was consulted by a lady whose home was in a distant part of Scotland. She was little and stout, and came into the room with a curious dazed expression, putting her hand on a chair or a table at every opportunity for support, and still occasionally reeling a little like a person on board ship who has not acquired his sea-legs. She stated that life was made intolerable to her by various uneasy feelings, the billowy rolling of the floor being the most distressing; but that occasionally she had fits of unconsciousness, and sometimes convulsions. Her tongue was furred, her appetite was impaired; and she suffered from constipation. There was no deafness nor noises in the ears, nor any other condition characteristic of Menière's disease. Neither was there any fixed pain in the head, nor eye changes, paralysis, or convulsions, such as might have been indicated by cerebral tumour, and her illness had already lasted for years. I was satisfied from the result of treatment, as well as afterwards from the absence of important symptoms, that this case was to a large extent dyspeptic in its origin, the dyspepsia being implanted upon a very sensitive nervous system. The fits of unconsciousness I regarded as syncopal, the convulsions as probably hysterical. When she was treated by means of stomachics and aperients, with regulation of the diet, she became greatly better, and now enjoys fairly good health.

A patient lately presented himself to me much alarmed about attacks of vertigo. He was somewhat advanced in years, of large frame, and had retired from professional work, which had, he told me, been laborious. As he suffered much from feelings of debility, he took food at short intervals and in considerable quantity; being unfit for active bodily exertion he tended to grow stout. Gradually he became subject to attacks of giddiness, associated with extreme anxiety, dimness of vision, and nausea, and even vomiting. The vomiting was attended by partial relief, and was followed after an hour or two by complete recovery. In this case also there was nothing characteristic of labyrinthine or cerebral disease, and I confidently anticipate, that with the establishment of better habits, diet, and regimen, and with the regular use of stomachic and aperient remedies, he will quite recover.

In the treatment of dyspeptic vertigo, Trousseau had the utmost confidence in the use of alkalies and bitters; he used to give a dose of quassia every morning and at bedtime, and after meals a powder containing 5 grains of bicarbonate of soda and 5 grains of magnesia, with 10 grains of prepared chalk; the powders were occasionally alternated with alkaline mineral waters, but a not unimportant part of the treatment was the insistence on careful dieting and regular bodily exercise.

Remember, then, that as to diagnosis, the hints that I have given you will guide you, and that in the treatment of this form of giddiness you will often effect a cure, and constantly obtain great relief for your patient by very simple means. Regulate the diet as to quality, quantity, and times of eating. Give aperients if they are required, alkalies, and bitters. Give stomachic remedies such as rhubarb, bismuth, soda, and aromatic powder, followed by nux vomica, quinine, or calumba or chiretta, and the good effects will speedily manifest themselves. When there is much flatus in the stomach, carminatives often do good, and if the ordinary ones fail, you will find that from ten to fifteen drops of turpentine may give great relief.

Now, what is the nature of this form of vertigo? Is it reflex? Is it a result of alterations of circulation within the brain? Is it a result of poisoning? It is impossible in the present state of our knowledge to answer these questions definitely, but I lean to the opinion that it is of the nature of poisoning that, in connection with the chemical changes of the digestive process under certain conditions, some substance is developed which, like alcohol or tobacco, acts upon the nerve centres so as to induce the peculiar uneasiness.

Among the commonest form of vertigo must be reckoned the toxic, and among them those due to alcohol and tobacco. When the action of alcohol has reached a certain point giddiness is experienced, and associated with this is the reeling gait. Objects may appear to whirl round the patient, or he may appear to be rotating — the movement may seem to be irregular, or in certain definite directions, as from right to left, or from left to right. You know the case of a well-known legal luminary in bygone days, who was found by a friend standing rather unsteadily in the square in which he resided, making no progress towards his door. When interrogated as to his object, "Don't you see," said he, "that the square is going round and round, and whenever my door passes I'm going to jump in." Or the apparent movement may be a rotation on a horizontal axis, as in the case of the man who was found lying on the ground, and who explained that the earth was turning rapidly round, and he was holding on by the grass to prevent it. We may not be in a position at present to state positively how this giddiness is brought about, whether through alterations of the vascular system, or by direct influence upon nerve centres, but the latter seems to me the more probable explanation. The effect of tobacco on those unaccustomed to its use is similar to that of alcohol in the production of giddiness; and other toxic agents might be mentioned which induce a like result—such as stramonium, belladonna, hydrocyanic acid, lobelia, hyoscyamus, and veratrum viride.

Occupying an intermediate position between the toxic and the dyspeptic, and perhaps also related in some measure to the labyrinthine vertigo, is the variety occasionally met with in gouty patients, sometimes slight, sometimes really severe, and which is apt to occur in the intervals between regular attacks of gout, especially as the attacks draw near, and which is often absent for a considerable time after the typical seizure. This form is, in my opinion, often referable to the stomach, but it may also perhaps be induced by toxic influence upon the nerve centres.

Besides these obviously toxic forms of vertigo, there are others which are reasonably to be referred to the same category—I mean the giddiness occurring in acute specific diseases. In the commencement of fevers, the symptom is not uncommon, just as we have commonly rigors and headache, and occasionally convulsions, as initial phenomena. It has been remarked that in influenza it is frequently very troublesome; sometimes as one of the earliest indications of morbid action; sometimes during the height of the disease; and that occasionally it continues for long after the acute stage of the malady has passed. It bears the same relationship to many acute diseases. In some of these cases, it is probable that at first a direct toxic influence is exerted, while at a later stage exhaustion of the nerve centres may be regarded as the most likely cause. In the case of influenza, it may be reasonably assumed that catarrh of the Eustachian tubes accounts for it. In the way of treatment you will do well to keep the patient at rest and in the recumbent position, as free as may be from the exciting causes of giddiness; for you will find that sitting up or attempting to read will often suffice to induce an attack. During the later stages tonics and nutrients, with moderate doses of alcohol, prove most serviceable.

Vertigo is sometimes produced by violent fits of coughing; sometimes by violent fits of sneezing. I do not know for certain the explanation of the fact; it may be due to changes in the ear, possibly to changes within the sensorium. It is not of very frequent occurrence. I think it is most likely due to the first-mentioned cause operating through the Eustachian tubes. The correctness of this view could be easily tested if one were to meet with a patient subject to the symptom who at the same time had obstruction of these passages.

In some cases giddiness is due to peripheral irritation, and that irritation may be situated in various parts of the body. As a typical example, I select the giddiness which sometimes results from the presence of worms within the alimentary system. You are aware that other nervous symptoms, such as convulsions and cough, arise from this cause, and we may assume that the vertigo is brought about in the same way as these other symptoms. It is most reasonable to refer them, in the present state of our knowledge, to reflex action, and in the case of giddiness, to an influence upon the cerebral circulation. The treatment in such a case is, of course, obvious. Let the irritating cause be removed from the intestine, and the giddiness will disappear.

Vertigo arises in some individuals from purely mental causes. A patient goes on board a steamer, and although there is no tossing, and no perceptible vibration, the recollection of what he has suffered before or the sight of the oscillation of the waves makes his head swim, or renders him actually giddy. In some, giddiness supervenes if a child is seen whirling rapidly round. I have known it even produced by another person walking in a small circle. The very thought of giddiness suffices in some to induce the sensation.

We have thus passed in review the chief causes of this sensation. We have considered giddiness as arising:—

(*a*) From external conditions.
(*b*) From alterations of the peripheræ of nerves.
(*c*) From changes in the conducting fibres.
(*d*) From changes in the central nervous system.
(*e*) From dyspepsia.
(*f*) From toxic causes.
(*g*) From causes of uncertain seat.
(*h*) From peripheral irritation.
(*i*) From mental causes.

By following out the indications which I have given, you will generally be able to determine with certainty the particular cause in any individual case, and thereby be able to devise a rational treatment.

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## *HOSPITAL LETTER.*

### PROFESSOR CHIENE'S WARDS, ROYAL INFIRMARY, EDINBURGH.

IN the present Letter I propose to give a brief account of Wards 13 and 14, under the care of Professor Chiene.

I shall begin with the order in which the work is arranged for the week; then give a short description of the dressings and lotions used; and, lastly, the treatment of two special cases which are in the wards at the present time.

At the beginning of the session, it was Professor Chiene's intention to hold his cliniques in the Convalescent Room of Ward 13, in order to avoid disturbing the other patients; but this room was soon found to be far too small, owing to the large numbers attending the cliniques, so that it was necessary to return to the old system.

On Mondays and Thursdays, from 12 to 1 P.M., a junior clinique is held, which is intended for students who have a knowledge of the elements of Anatomy and are commencing their surgical studies. On these occasions typical cases from the wards or out-patients are taken systematically, their symptoms, diagnosis, and treatment pointed out, and questions, which are most frequently on the anatomy of the region, put to each student in turn; as far as possible an indication being given of the subject to be discussed at the clinique, and the student expected to read up the subject. On Tuesdays at 12, the dressers are examined on the different cases in the wards, each dresser being expected to give an intelligent account, not only of his own, but also of all the cases in his ward. On Tuesdays and Fridays at 1 P.M., a senior clinique is given to Fourth-year students; they are divided into two sections, one of which attends on Tuesdays, and the other on Fridays; it was at first proposed to limit the number of each section to fifty, in order that each might have an opportunity of examining patients frequently, but owing to the number of applications it was determined that none should be refused; they are examined on the different cases in the wards or on the out-patients, each student being called up in turn to give his diagnosis and suggest a plan of treatment. Wednesday is our operation day in the large theatre. Every Saturday, alternately with Mr. Miller, an out-patient clinique is held in the large theatre at 12 o'clock.

In our antiseptic dressings the carbolic spray still retains its place. For drainage a skein of catgut is used when the discharge is only likely to be serous; but where suppuration is probable, india-rubber tubes, which have been preserved in carbolic lotion (1 to 20) for some time previously. A double thread of horse-hair is generally used for sutures, as this possesses the advantages of pliability and perfect smoothness, all slipping of the knot being avoided by making the first turn double. The surface of the wound is first covered with a layer of protective, then a layer of wet carbolised gauze, next a layer of salicylic wool, and sometimes pads of salicylic silk if there be much discharge; over this a large superficial dressing of carbolised gauze—no Mackintosh being used, in order to allow of free evaporation,—and a domette bandage over all to exert pressure and keep the parts at rest. If the wound be in a position which renders it impossible to keep aseptic, or if it be already septic, a layer of lint soaked in eucalyptus oil, 1 to 6, and covered by salicylic wool, to absorb the discharge, is placed over it. A boracic poultice is frequently used to cause the separation of sloughs and formation of a granulating surface in septic wounds and ulcers; it consists of a layer of wet boracic lint covered by gutta-percha tissue. Chloride of zinc lotion, gr.40 ad. ℥j., is used frequently as an application to putrid ulcers, sinuses with thickened walls, and cavities in bone resulting from the removal of sequestra,—the parts in all cases being well scrubbed with the lotion, and then a boracic poultice applied to ulcers, and lint soaked in an emulsion of eucalyptus oil and iodoform packed in bone cavities. In cases of putrefaction occurring in suppurating joints, we have lately been trying a solution of corrosive sublimate in water, 1 to 2000, first washing out the joint with this solution, and then putting on the usual antiseptic dressing, and so far the results have been highly satisfactory.

The treatment of two cases in the wards at the present time perhaps calls for special notice. The first is one of fracture of the spine at the level of the first and second lumbar vertebræ, followed by complete paralysis of the left leg and partial of the right, with partial loss of sensation in the right foot, and retention of urine and fæces. On admission, a poroplastic splint reaching from the axillæ to the trochanters was placed on the back, with double extension to the thighs and a weight of 20lbs., the foot of the bed being well raised to procure counter-extension. Three weeks after admission a plaister jacket was put on: the patient has now regained some power over his legs; the anæsthesia has disappeared, but there is still some hyperæsthesia; he has control over micturition but not over defæcation, the bowels remaining sluggish for several days, and then being evacuated without his knowledge.

The second case is one of transverse fracture of the patella, of six weeks' duration, complicated with suppuration of the knee-joint, which had been opened five days before admission, and was septic, and a large abscess on the outer side of the thigh. The patient is now fifty-six years of age, and has been very intemperate, but has never had any severe illness before. On the day of admission, the abscess of the thigh was opened, and a large quantity of laudable pus evacuated: the knee-joint was also opened on the same day, the previous opening having closed, and a quantity of thin, sanious pus removed; both cavities were then washed out thoroughly with a solution of corrosive sublimate, 1 to 2000, drainage tubes inserted, and the usual antiseptic dressing applied. The joint was again washed out in two subsequent dressings with the same solution, and after this the discharge became sweet and then ceased, and the wound closed up; from the large abscess in the thigh, there was practically no discharge after the first dressing.

J. F. L. Whittingdale.

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# *REVIEW.*

**The Story of the University of Edinburgh during its First Three Hundred Years.** By Sir Alexander Grant, Bart., &c. In two vols. 8vo. With Illustrations. London: Longmans, Green & Co., 1884.

THAT a proper history of the University of Edinburgh was required; that the celebration of the Tercentenary of her foundation was a good time for its publication; and that her present distinguished Principal, whose position in the republic of letters is acknowledged, was the right person to undertake the task, will not be disputed; and yet, somehow, we rise from the perusal of these two bulky volumes with something of a disappointed feeling.

We readily admit that the Principal's loyal but self-imposed task was not an easy one. The history of the University which he so ably governs is one of strife, and the smoke of the latest combat is scarcely sufficiently cleared away to allow a clear view of the position to be taken. Sir Alexander may have strong views on the questions over which the battles of past years have been fought; if so, he studiously conceals them, perhaps, having respect to the festivities with which it is proposed the Tercentenary shall be celebrated, from which all that is unpleasant will be properly excluded, although such exclusion gives a tameness to the history which materially detracts from its value.

We confess we think justice is scarcely done to our municipal rulers for the care with which they fostered their pet institution in her earlier years, nor for the many and arduous battles which they fought with the professors on behalf of liberty and reform—battles in which they ultimately were victorious, greatly to the advantage of the University. Indeed, so mild an historian is Sir Alexander, that one requires to read carefully between the lines to discover the selfishness which led the Senatus to reject every proposed change which was in their opinion likely to affect either their prestige or their pockets. And, sooth to say, we must not blame them too much. The profession of Dominie has never ranked high, or been well paid in Scotland, and the provision for the support of these upper-class teachers was of so meagre a character as to force them continually to look to their pecuniary interests.

The limited space at our disposal compels us, however, to confine our criticisms almost exclusively to that portion of the work which refers to the Medical School, and here perhaps the record is most deficient. In the last generation the fame of such teachers as John Playfair and Dugald Stewart attracted the liberal youth of England to the Edinburgh University, a movement which was no doubt stimulated by the then exclusive character of the English universities. In this generation it is the fame of the Medical School which has proved the great attraction, and which has filled her class-rooms to overflowing, despite the formidable opposition of the great hospitals of London and the English provincial towns, and the facility which the London University offers for conferring academic degrees without the necessity of academic culture.

If, however, we are disposed to think that the London University errs in giving its degree to men who have never studied at an university, we would censure the University of Edinburgh for running into precisely the opposite extreme; for, but for external pressure put upon her and firmly resisted by her professors, she would not have allowed a single student to be examined for her degree who had not taken the whole of the education required within her walls or those of some other university, a regulation which denied the power of teaching to the *Doctores* resident in Edinburgh whom she had herself created.

To Professor Syme, the University was indebted for the relaxation of this rule; the motive for the change set forth in his celebrated letter of 1840 might not be a very high one, and the movement may have gone further than he either expected or desired, still the result was highly beneficial, not only to the University itself, but to the whole Medical School of Edinburgh. Sir Alexander Grant, however, while not concealing it altogether, rather glosses over the melancholy fact that the Senatus Academicus, instigated by the Medical Faculty, fought hard to restrict the teaching bodies whose classes were to be allowed, to those located in London and Dublin, thus seeking to exclude their own graduates who were teaching in Edinburgh. This led to the memorable law-suit between the Town Council and the University, which turned on the point whether the Patrons (the Town Council) or the Senatus Academicus (the Professors) had the right to make the regulations for conferring degrees. In 1850, the case was decided in the Outer House of the Court of Session in favour of the Town Council; in 1852 this decision was confirmed by the Inner House, and in 1854 by the House of Lords, notwithstanding a three days' speech from Sir Richard Bethell for the Senatus. It is not very satisfactory to know that the expenses of this litigation were defrayed by the Senatus from a fund entrusted to them by General John Reid for "establishing and endowing a 'Professorship of Music in the College and University of Edinburgh' . . . making additions to the Library of the said University, or otherwise promoting the interest and advantage of the University in such way as the Principal and Professors thereof for the time being shall in their discretion think most right and proper." For their management of this fund they were afterwards called to account by the fourth Professor of Music whom they appointed, — Mr. Donaldson,—

"Who," as Sir Alexander tells us, "was not only a lawyer, but a skilful litigant, and who succeeded in enlisting the sympathies of the Town Council and in getting them to bring in 1850 an action of exhibition and declarator against the Principal and Professors, to ordain them to apply the Reid Fund at the sight of the Court of Session.' —Vol. ii. p. 233.

The writer of this article knew Donaldson well, and can testify that he was anything but the unhappy man indicated, as Sir Alexander says, by his portrait. He had also an opportunity of perusing the voluminous law papers as they were successively issued, and feels it right to bear emphatic testimony to the zeal and perseverance with which Donaldson fought his case almost single-handed; and to the purity of the motives which actuated him throughout in vindicating the devotion of the Reid Fund to its proper purposes—a fund which even Sir Alexander is obliged to allow had not been "equitably dealt with by the Senatus."

We regret exceedingly that for Donaldson, who was the instrument of establishing a great principle, and righting a great wrong, Sir Alexander has nothing but reprobation:—

> "He never composed anything."—"He had been a well-known teacher of music in Edinburgh, and apparently with a view to an improved social position, had got himself called to the Bar."—"He had great aptitude for litigation, and it is said that during a long series of years he was at law with his wife's relations on the amount of dowry payable to her. . . . Probably he refused all compromise. And the same uncompromising spirit showed itself in his assertion of the claims of the Music Chair to be better endowed out of the Reid Fund than he found it on his appointment."

We confess we are at a loss to see what the family litigation in which he was unfortunately involved, and in which, to use Sir A. Grant's own expression, he was "probably" also in the right, has to do with the story of the University; and perhaps a man who, as Sir Alexander allows, "had a great aptitude for litigation," and who comparatively late in life obtained the means which he lacked in youth of studying for the Bar, might, without any view "to an improved social position," but with a desire to go minutely into the legal technicalities of a case on which he found it difficult to get an advocate to bestow the necessary time, qualify for (which is what we suppose Sir A. Grant means by "got himself called to) the Bar." A little inquiry would have shown that the step he took was a wise one in regard to both litigations, proving the truth of the old adage, "If you want a thing well done, do it yourself." At all events, let this be said, that, during his incumbency, courses of lectures on music were delivered, which proved both interesting and attractive, and that to him Edinburgh is indebted for the admirable organ which his distinguished successor turns to such excellent account for the benefit of the Edinburgh public.

As especially interesting to the readers of this Journal we may notice the account given of the "Beginnings of the Medical School," now the largest and the one of most repute in Great Britain, if not in the world. The credit of this is no wise due to the University or its Patrons, but to Andrew Balfour and Robert Sibbald, who, being forced by the want of schools of medicine at home to study abroad, went, the one to Italy, the other to Holland, for the acquisition of medical knowledge. Sir Alexander Grant is inclined to give the greater prominence in this laudable enterprise to Sir Robert Sibbald; but there is no doubt—that while to their conjoint labours we owe the establishment of a Botanic Garden, first forming part of the Royal Gardens at Holyrood, and afterwards removed to the gardens of Trinity Hospital, now occupied by the eastern part of the Waverley Railway Station, still called the Physic Gardens—it was Sir Andrew Balfour who was really the more active, and it was he who first introduced the dissection of the human body into Scotland, in 1670.

So far from assisting them in their laudable efforts, the College, the Town Council, and the Barber-Surgeons offered an uncompromising opposition, especially to their plan of establishing a College of Physicians; for which, however, they were successful in obtaining a charter in 1681.

In the *Edinburgh Evening Courant* of 14th February, 1706, is a curious Latin advertisement by Sir Robert Sibbald, announcing his intention of giving private instruction in Natural History and the Art of Medicine.

For many years after its foundation the only degree given by the University of Edinburgh was that of Master of Arts. In regard to the examination for it, Sir Alexander Grant, following Crawford, records:—

> "The first batch of Magistrands* to be laureated was Rollock's Class, in 1587. These he carefully examined himself, and then gave them their degrees. Afterwards, when the College Staff was complete, this simple procedure was superseded by minutely-prescribed arrangements. The first principle of these arrangements appears to have been that no regent (teacher or professor) should be allowed to examine the class which he had himself taught. The regent of the Magistrand Class* was thus excluded from their final examination for degree, and as he had the sole training of them since their matriculation they would now have to be examined by persons who had taken no part in their teaching. This was devised to exclude all suspicion of favouritism."—Vol. i. p. 152.

It had been well for the University had this principle been adhered to and applied to all the degrees as well as that of Arts.

It was not until 1724 that the Town Council of Edinburgh passed an Act establishing a Chair of the Institutes and Practice of Medicine in their College, and appointing Mr. William Porterfield, Doctor of Medicine in Edinburgh, to be Professor; while shortly after his appointment, "four members of the College of Physicians—Drs. John Rutherford, Andrew Sinclair, Andrew Plummer, and John Innes—applied for the keeping and use of the College Garden, with the view of rearing pharmaceutical plants therein. They proposed to set up at their own cost a chemical laboratory in conjunction with the garden, their object being to supply the apothecaries' shops with drugs" (vol. i. pp. 307, 308). In 1726 these four gentlemen, who seem previously to have been conducting medical classes privately, were appointed professors, with power to teach and grant degrees in medicine.

But for twenty years previous to this the College of Physicians examined for the degrees which were conferred by the University, and in 1713, by their advice, Dr. James Crawford was made Professor of Physic and Chemistry by the Town Council; and in 1720 the Town Council, on a *testimonium* granted by the College of Physicians, commissioned Dr. Alexander Monro *primus* to teach Anatomy, and in that year he gave the first regular course of Anatomical Lectures ever delivered in Edinburgh.

In the account given by Sir Alexander, he seems indisposed to give to the College of Physicians the credit which it undoubtedly deserved for the establishment of these chairs.

This tendency to ignore its claims to public gratitude is still more manifest in the account given in these volumes of the establishment of the Royal Infirmary. He says:—

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* The pupils of the highest or fourth year class were called *Magistrands*, or students about to be made *Magistri*.

"The reasons in favour of such an institution were set forth by Monro in a pamphlet which was circulated in 1721, but at the time little public encouragement was given to the scheme. In 1725, however, when Drummond became Lord Provost for the first time, he provided a basis for a subscription list by getting some of the funds of a Scottish Fishery Company, which was then being dissolved, allocated for the establishment of the Infirmary.

"The College of Physicians took the matter up, and subscriptions for some years continued to flow in. At last, in 1738, the foundation-stone of that building which was till recently the Royal Infirmary of Edinburgh, was laid, and a great public enthusiasm on the subject was manifested."—Vol. i. p. 306.

We find, however, that at the second meeting of the College of Physicians, after it obtained its charter in 1681, the care of the sick poor engaged its attention, and four of the Fellows of the College were appointed to give them gratuitous medical advice, while soon afterwards a fund was raised to supply them gratuitously with medicines, while a portion of the first Hall built by them at the foot of Fountain Close was set apart for giving advice to the sick poor. Without undervaluing the eminent services of Provost Drummond, we must claim for the College of Physicians the real honour of founding the Royal Infirmary. This we prefer to do in the words of a former President, Dr. Beilby,* who, after referring to the plan of caring for the sick poor, says:—

"This benevolent plan was carried on with little intermission for many years,—namely, till 1742; and out of it may have been said to have originated an institution that has been the source of health and blessing to countless multitudes for 120 years past. The honour of the design, the completion, and the establishment of the Royal Infirmary, belongs to the Royal College of Physicians, by whose exertions nearly the whole of the funds were raised for the purchase of a suitable building, and the Fellows bound themselves to give gratuitous attendance upon the patients in it so long as it might be necessary. . . . The building first occupied as an hospital was soon found to be quite insufficient, and the College was called upon to make new efforts and additional contributions for the erection of a more spacious edifice. The call was responded to with promptitude and liberality; and the foundation of the present Infirmary (1846) was laid in 1738 with great ceremony, in which our College took a prominent part."

To Dr. Munro, *primus*, seems to have been due the credit of those arrangements which secured the efficiency of the Institution.

As an acknowledgment of the first claim of the College of Physicians, the charter originally granted provided that one-fourth of the Board of Management should be Fellows of the Royal College of Physicians, a privilege which the College voluntarily relinquished when a new charter was obtained to popularise the management previous to the erection of the present magnificent building.

(*To be continued.*)

ALEX. WOOD.

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## *REPORT ON SURGERY.*

### *RECENT PAPERS.*

1. **Zabludowsky.**—DIE BEDEUTUNG DER MASSAGE FÜR DIE CHIRURGIE UND DEREN PHYSIOLOGISCHE GRUNDLAGEN. (The Place of Massage in Surgery, and its Physiological Basis.) *Von Langenbeck's Archives.*, Band. xxix., 1883.

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* "Address delivered at the opening of the New Hall of the Royal College of Physicians, 27th November, 1846," by Wm. Beilby, President: Edinburgh, 1847.

2. **Küster.**—UEBER IODOFORMBEHANDLUNG, INSBESONDERE BEI WUNDEN DER BAUCHHÖHLE. (On the Use of Iodoform, specially in Abdominal Wounds.) *Von Langenbeck's Archives.*, Band xxix. 1883.
3. **Verneuil.**—DE L'AUTO-INOCULATION TRAUMATIQUE. (On Traumatic Auto-Inoculation.) *Revue de Chirurgie*, 10th Décembre, 1883.
4. **Symonds, C. J.**—ON CHRONIC INFLAMMATION OF BONE (*continued*). *British Medical Journal*, 15th December, 1883.
5. **Marshall, John.**—NERVE-STRETCHING FOR THE RELIEF OR CURE OF PAIN (*Bradshaw Lecture*). *British Medical Journal*, 15th December, 1883,

1. **Zabludowsky on the Place of Massage in Surgery, and its Physiological Basis.**—In this paper we have the results and opinions of one who is evidently a master of his subject, and who has had considerable clinical experience and great success in treating large numbers of cases, under the care of Professor Bergmann, at Berlin. He has attempted to rescue the system of Massage from the hands of empirics, by showing what are the physiological results of its application, and how far they form an indication for its employment in surgical affections.

In his first experiment upon a series of healthy individuals, he observed that the general vital activity was heightened, with increase of muscular power, and augmentation of the nitrogenous waste products eliminated, accompanied by a feeling of well-being. Examining more closely into the effect on muscle, he experimented on a number of frogs, with the assistance of Professor Kronecker, and found that muscle wearied by prolonged electric stimulation, could by an application of massage of given duration, be restored to nearly its initial power; whereas an equal period of rest did very little in this direction. A somewhat similar experiment was made on the human subject, where a weight of one kilogramme was repeatedly raised to the shoulder, by flexing the forearm on the arm, at intervals of one second. This was accomplished 840 times before the muscles were completely wearied; the arm was then massaged for five minutes, when the weight could be raised 1100 times consecutively, at the same intervals of time. In another experiment, under precisely similar conditions, fifteen minutes complete rest without massage was allowed after the first series of contractions, but no substantial restoration of power resulted; and during such periods of rest it was noted that the muscles remained stiff, whereas when massage was applied they shortly became completely pliant. He insists strongly upon the importance of the nutritive and tonic effect on muscular substance which these results show to have been attained by so easy and rapid a method. By further experiments on dogs and frogs he found that during the process the electric excitability of muscle was reduced, and that the sensory nerves of the skin lose much of their irritability; the latter may be due to over-stimulation produced by the continuous hard rubbing. The heart's action is considerably accelerated during the same period.

These observations, he maintains, furnish useful indications for the employment of massage; but the results of clinical experience are at present far ahead of those attained by physiological research. He points out the need of further investigation into the effects produced on the lymphatic system by massage, and its influence upon tissue growth.

The purely mechanical effects of the treatment are, that tissues previously firm and rigid from prolonged inactivity, gain elasticity and mobility; and by its gradual action such dangers as extravasations of blood, or exacerbations of inflammation are avoided, to which the strictly orthopædic forms of treatment may give rise.

In practice, massage must be associated with passive movements in the majority of cases, and in the further consideration of the clinical aspects of the question, he assumes the two to be combined. At the outset we are warned that massage is calculated to produce deleterious or beneficial results, according to the individual peculiarities of the patient, and the various processes employed. It is to be noted that "the diseased conditions treated by massage are due in the great majority of cases to anatomical changes which it is requisite that the operator should thoroughly understand, in order that the treatment may produce the desired effect." A thorough knowledge of nerve distribution is here as necessary as in the electrical treatment of morbid conditions; but it is not considered desirable that any stereotyped forms of procedure should be laid down for the treatment of the different types of disease; but rather that each case be treated on its own special merits.

The usual method of application is described as follows:—"It consists chiefly in centripetal rubbing with one hand, accompanied by circular movements with the other, at the same time grasping the part with the fingers and compressing it between them." This method, which is called *effleurage*, is adapted only for parts where the affected tissue lies at no great distance from the surface. For more thickly covered structures, as the hip joint, or the great sciatic nerve, another method, termed *pétrissage*, is better adapted. This consists of "rolling, pinching, sawing, and beating with the edges of the hands, or the closed fists. In the last manipulation the little finger should not be held firmly in contact with the ring finger, and thus a somewhat yielding surface is produced."

The practical results of this treatment, of which the remainder of the paper is a summary, do Dr. Zabludowsky the greatest credit. He divides his cases, over 200 in number, into five groups;—extravasations, stiff joints, cicatrices, synovitis, and inflammatory flat foot; and he considers the advantageous employment of massage closely confined to cases of these types. His great success seems due to the care with which he has chosen suitable cases for treatment, and the patience and close personal attention he has expended upon them.

2. **Küster on the Use of Iodoform, specially in Abdominal Wounds.**—Judging from his own experience, Professor Küster considers the use of iodoform as an antiseptic, specially adapted for operations where the peritoneum is involved, and for those on the genital organs and rectum. In the latter particulars most will be inclined to agree with him, for iodoform is perhaps the strongest antiseptic and deodoriser as yet known. In speaking of peritoneal cases, he mentions a somewhat famous one of Professor Schrœder's, where a tubercular peritonitis disappeared, and a perfect cure ensued, on the whole peritoneal cavity being powdered with iodoform. On employing the same method in a case of septic peritonitis under his own care, the peritonitis similarly entirely disappeared, but the patient died on the 8th day from iodoform-poisoning. He specially praises its usefulness in operations on the vagina or uterus, where, applied in the form of a tampon, it forms a most convenient dressing. In his cases of extirpation of the uterus, the exposed coils of intestine were carefully cleansed, and then finely dusted over with iodoform; and in two cases a completely aseptic course was thus maintained till healing was complete; in the third also the wound remained perfectly aseptic, but here also the patient succumbed to iodoform poisoning on the 11th day. There is

something almost akin to naïveté in Professor Küster's recommendation, when one considers the percentage mortality in the cases upon which it is based; but those cases are of extreme interest and value, and furnish important data for the discussion of the rival merits of various antiseptic substances.

3. **Verneuil on Auto-Inoculation.**—In this very interesting paper, Professor Verneuil treats most thoroughly of the sources of wound infection, but specially with a view to supporting his theory that in many cases the sources of contamination are harboured by the patient himself, and supplied to the wounded surface. This he terms Auto-Inoculation. Not only are these contaminating particles stored on the free surfaces of the body, and in the cavities connected with them; but they may also lie hidden in many of the tissues, waiting but for favourable circumstances to develope themselves. Thus placed, they receive the name of "virulent foci"; and may remain for any length of time inert, until the special stimulus to growth and development occurs. This stimulus is the reception of a wound of any sort, either by a tissue in which the foci are placed, or by one whither they are carried by the blood stream. In either case development may occur, and a traumatic infective disease is produced. This may continue local; may give rise to secondary affection; or, to a general infection of the system. The whole theory is most ingeniously supported and amply illustrated by a large number of cases bearing on each of the points considered; and it is made the basis upon which even greater precautions are recommended, both in operative interference and in the treatment of wounds.

ARTHUR W. HARE.

4. **Symonds on Chronic Inflammation of Bone.**—This paper is confined to the consideration of enlargement of the bones of the head, and especially to the uniformly thickened skulls, which, though common as museum specimens, are as yet little understood. They are divided into four groups:—

(1.) Those where "the outer and inner tables are distinct, compact, and of no great thickness, the diploe is well-defined, with a regular open texture." Sir James Paget's view of "concentric hypertrophy"—*i.e.*, the inner table of the skull following a shrinking brain—is not accepted. The author believes that cerebro-spinal fluid replaces the shrinking brain, and that "the capacity of the cranial cavity is determined . . . by the growth of the brain, or in some, perhaps, by an early ossification of the bones with closure of the suture." After the increase in area of the skull has been thus checked, the increased thickness may be due to continued growth asserting itself on the inner surface of the bones instead of at their adjacent margins, or again, these changes may be attributable to rickets.

(2.) Those where "the bone is porous throughout the inner and outer tables, as much so as the intervening substance." Mr. Symonds rejects the possibility of osteo-malacia being a cause of this deformity. He holds that osteitis deformans may be taken as the cause of a certain number of cases, but that there is a certain proportion where no satisfactory explanation has as yet been given.

(3.) Those where, "besides a general increase in size, there are numerous nodular projections from the inner surface, varying from small rounded nodules to large irregular agglomerations of bony ridges." These may be due to an early stage of tumour formation, and have been associated with lunacy.

(4.) Those which approach tumour formation. The facial, as well as the cranial bones, are involved. The disease is known as leontiasis ossea. Allied to these are "those skulls covered with smooth bossy masses of bone, and, at the same time, showing considerable increase in thickness."

The possible association of osteitis deformans with malignant growth is then pointed out.

No satisfactory explanation of the process of so-called "expansion" in the cranial bones is given us. In conclusion, Mr. Symonds considers it probable that osteitis deformans is a special pathological change acting differently on bones from ordinary chronic inflammations.

**5. Marshall on Nerve-stretching for the Relief or Cure of Pain.**—We have in this lecture an important review of the whole subject, together with many original observations and suggestions. Beginning with the mechanical conditions, Professor Marshall shows that a nerve, while much less intensible than an artery, is somewhat more so than a tendon; that nerves are more extensible the nearer they are to the spinal cord, and those of the upper limb more than those of the lower. The strain in stretching is chiefly borne by the sheath of the nerve; the structure which also gives the recoil when the weight is taken off again. The breaking strain of the human sciatic nerve after death is put at 180 lbs. as an average, but experiments are quoted to show that the living nerve gives much greater resistance than the dead does.

The microscopic appearances of stretched nerves are considered carefully, and the result being summed up, it is found "that the natural segmentation seems to give way to an abnormal or irregular breaking up of the medullary sheath; that sometimes the tubuli break, and that still more rarely the axis cylinder gives way." These have been observed in nerves quite fresh, as well as in those for some time dead. When the stretching has been done on a living nerve, it has been found that "the sheath becomes infiltrated and hyperæmic, charged with small ecchymoses and larger hæmorrhages; the vessels become compressed or twisted, and the lymphatics must undergo a similar compression. Then, with regard to the tubules themselves, degenerative changes are rapidly set up in them in which the fine nerve tubule rapidly melts away, the axis-cylinder is broken across, the medullary matter escapes in the form of oil globules, and the whole mass of nerve becomes disintegrated, and subject to soft atrophic changes. Then restorative changes follow in the living nerve."

The physiological results of nerve-stretching are given generally as an influence in all the functions of a nerve in a greater or less degree in proportion to the amount of force employed. "The motor functions are less markedly depressed than the sensory," *all* of which become affected if the stretching be sufficient.

An interesting point to determine was whether or not the stretching of a nerve had any mechanical effect on the spinal cord. Mr. Marshall and others seem to have proved that it does not; he says, "We find the stretching effect pass to the sciatic plexus; we find it passing to the roots of the nerves, where it must disturb the spinal ganglia or the posterior roots, and it must disturb the dura mater. It may, by disturbing the dura mater, shake the cord a little through the ligamentum denticulatum on either side; but we find no change of tension in the intra-spinal, or intra-meningeal part of the nerve, and no movement in the cord."

Some important tables are given on the clinical results of nerve-stretching, its advantages in neuralgia and tabes dorsalis being specially referred to. The modes in which the good effects are produced are discussed at some length. In the case of neuralgia, where the pathological changes are in the nerve itself, Professor Marshall thinks that the cause of pain must be referred to nervi nervorum, although, except in the optic nerve, these have not yet been demonstrated. When a nerve is stretched, these fine filaments, being fixed to the sheath, will be relatively more stretched so as to be completely paralysed, and thus pain in the nerve will be abolished. The results on the nerve-tubules themselves will, of course, also contribute to this result.

In tabes dorsalis the effect is considered to be brought about in the posterior columns by trophic or vaso-motor influences, the result of irritation to the posterior ganglia by the strain on the nerve-trunk.

Under cases considered suitable for nerve-stretching are mentioned neuromata of stumps, and allied thickenings of nerves in their course, also painful ulcers of the skin. Affections of nerves for which nerve-stretching seems unsuited are given as entanglement of a nerve in a callus or cicatrix, where the cure should be afforded by direct operation; also in multiple neuromata, whether of a simple or malignant character.

In performing the operation we are warned that, unless a palpable stretching of the nerve be produced, no result will follow. Stintzing is quoted as having found, by experiment, that the sciatic nerve of a healthy animal may be stretched with safety to an extent equal to half the weight of its body,—say, in a healthy man, up to 75 lbs. Reducing this for a diseased nerve, Professor Marshall recommends 30 lbs. as the limit of the strain. In other nerves the force employed would, of course, be proportionally less. This, however is not to be measured, but to be learned by experience; "the nerve sensibly yields to your traction, you feel an internal creeping movement in the particles of the nerve—of the sheath no doubt—you feel a certain attrition and vibration going on, and you must educate yourself to that, and then you will be safe." A continuous steady strain is to be employed for several minutes, not a sudden pull, nor a series of jerks. "Stretch both ways for neuralgia, and get as near to the seat of severest pain as possible. It is of less consequence to stretch from the extremities in tabes, it is essential to stretch from the trunk or body."

The bloodless method of stretching the sciatic nerve is alluded to favourably. This consists of flexing the thigh or the abdomen, extending the knee, and flexing the ankle. It was introduced by Professors Trombetta and Bilroth independently,—the former, probably having the priority.

CHAS. W. CATHCART.

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## REPORT ON OPHTHALMOLOGY.

1. **Javal, E.**—QUATRIÈME CONTRIBUTION À L'OPHTHALMOMÉTRIE. (Fourth Contribution to Ophthalmometry.) *Ann. d'Oculist*, Sept.-Oct. 1883, p. 105.
2. **Vassaux, G.**—PERSISTANCE DE L'ARTÈRE HYALOIDIENNE ET DE LA MEMBRANE PUPILLAIRE AYANT DÉTERMINÉ DES ALTERATIONS INTRAOCULAIRES SIMULANT CLINIQUEMENT UN NÉOPLASME. (Persistent Hyaloid Artery, &c., with Consecutive Changes simulating Intraocular Tumour.) *Arch. d'Ophthal.*, Nov.-Dec. 1883, p. 502.
3. **Hirschberg, J.**—EIN FALL VON PERSISTENZ DER FÖTALEN GLASKÖRPERGEFÄSSE. (Persistence of Hyaloid Vessels.) *Centralblatt für Prakt. Augenh.*, Nov. 1883, p. 325.
4. **Purtscher, O.**—ZUR FRAGE DER ERYTHROPSIE APHAKISCHER. (Red Vision following Cataract Extraction.) *Centralblatt für Prakt. Augenh.*, June, 1883, p. 161.

5. **Benson, A. H.**—Erythropsia in Aphakia. *Ophthal. Review*, Dec. 1883, p. 361.

1. **Javal on Ophthalmometry.**—In this paper Javal discusses the subject of astigmatism, and gives his views on its correction, as well as his ophthalmometric results. His account of his observations on his own astigmatism deserves notice. At one time it produced no effect on his vision; then he observed it, but was able to overcome it at will by accommodation; and now has to correct it by glasses in order to obtain distinct vision. The exact analogy between astigmatism and hypermetropia in their effects on vision at different ages which these observations suggest is very interesting.

He finds that in old people, and in misdirected and myopic eyes, the correction of the corneal astigmatism, as estimated by the ophthalmometer, gives as good vision as can be obtained by any method; while in hypermetropic eyes it exceeds the "manifest astigmatism," but corresponds to the "total astigmatism" found by the subjective test after the use of atropin. Only in very rare and exceptional cases does astigmatism of the lens interfere seriously with the accuracy of these results.

Where the total and manifest astigmatism differ he orders glasses on exactly the same principle as in hypermetropia—*i.e.*, he corrects fully the manifest astigmatism, but no more, unless decided asthenopic symptoms are present. Where that is the case, he makes the correction exceed slightly the manifest astigmatism. He finds it not only unncessary but undesirable to ignore in ordinary cases the physiological arrangement which, to a greater or less degree, overcomes the disadvantages of hypermetropia or astigmatism. That practice seems to push theory at all events near the boundary that should separate theory from hobby.

2. **Vassaux on Persistence of the Hyaloid Artery, &c.**—The case here described resembles in many of its features those recently discussed by Nettleship (*vide* No. 10 of this Journal); but the lesion was congenital and due to persistence of fœtal structures. The patient was a child, two months old, and the condition of its eye was observed by its parents very shortly after birth. The pupil was larger than normal; the iris projected forward, almost obliterating the anterior chamber; the tension of the globe was increased. Under atropin it was found that the iris was largely adherent to the lens-capsule, slightly to the cornea. The pupil was partially occluded. There was a yellowish reflex from a tumour behind the lens, not mobile, with numerous vessels on its surface. No red reflex was to be seen. There was incipient cataract. No doubt was entertained that a glioma was present, and the eye was enucleated.

On examination it was found that a white cord enclosing the hyaloid artery stretched from the optic nerve towards the posterior pole of the lens. Otherwise the posterior part of the globe was normal. The substance occluding the pupil was found to be the remains of the pupillary membrane. The ciliary processes were displaced from their normal position, and stretched over the equator of the lens and the posterior surface of it, and of a grey opaque mass which lay close behind it. This mass, in which the hyaloid artery terminated, consisted of white fibrous tissue, and communicated with the lens through a rupture in its posterior capsule. Most of the lens substance was degenerated and semi-fluid. The author attributes this curious condition to an inflammatory process commencing round the branches of the hyaloid artery, and spreading to the ciliary processes, iris, and pupillary membrane. The resulting exudation, he thinks, shut off the lens from its nutritive supply, causing its degeneration, prevented normal interchange of fluid between the aqeous and vitreous chambers, causing increased tension, and by its cicatricial contraction helped to draw the lens forwards, and displaced the ciliary processes.

The case is interesting as a well marked example of a rare persistence of fœtal structures; and as showing how completely all the ordinary signs of a glioma may be presented by a non-malignant condition.

3. **Hirschberg on Persistence of Hyaloid Vessels.**—Hirschberg describes another case of persistence of hyaloid vessels. The patient came under observation on account of an attack of retinitis punctata, unconnected, in the author's opinion, with the other abnormality. In one eye there was a very peculiar appearance, which he found, after prolonged study, to be a fine film commencing in the physiological cup, and spreading over a part of the retina at some distance from it. Numerous vessels ramified through it, some of which passed back to supply a portion of the retina. The perfect transparency of the vitreous showed that it was not a new formation, and it could only be explained as a persistence of fœtal vessels.

4, 5. **Purtscher and Benson on Erythropsia.**—It has not unfrequently been noticed by persons from whose eyes cataract has been removed that objects occasionally appear red for a time, instead of their ordinary colours. Purtscher collects eight such cases, and Benson describes a remarkable case of his own. The same or a similar condition sometimes manifests itself in normal eyes, but is much less common and distinct than where the lens is absent. It appears first sometimes weeks, sometimes years, after the cataract has been removed; sometimes only out of doors, sometimes only in the house; but generally after unusual use of the eyes, excitement, or exertion. Benson's patient was a young man of twenty-eight, in whom he had needled and removed a traumatic cataract, leaving good vision and a normal mobile pupil. Red vision appeared first some eight months after this, and lasted four days and nights. It recurred at intervals for five months, and then ceased. It returned, however—and this is the most remarkable feature of the case—in the upper half only of the field of vision, the lower remaining normal; after recurring for some time, this condition in its turn passed away. No injection or initation was present during the attacks, nor was the visual acuity diminished.

The effect is clearly not an optical one: the colour is general over the objects seen, not confined to their margins. Nor can it be explained by colour-contrast; it manifests itself under most diverse conditions, sometimes making its appearance on awaking from sleep. It occurs indifferently after various methods of removing the lens. Its cause must be sought in the retina or nerve-centres. It is to be regretted that Benson had not an opportunity of examining his case during the singular phase of hemierythropsia; it would have afforded an unusually favourable opportunity for discovering changes in the fundus, if they exist. They have, however, been looked for without success; and, in the absence of any evidence of visible change, the condition must be considered a purely subjective phenomenon. Purtscher regards it as due to anæsthasia of the retina for other colours than red; Benson considers hyperæsthesia for red a more probable explanation. The undiminished visual acuity seems to favour the latter view ; the hemierythropsia in his own case, however, which Benson thinks a strong point against the theory of anæsthasia, seems to me as difficult to explain on his own theory as on the other. The spectroscope, as he suggests, may settle the question. No satisfactory reason has been given why eyes without lenses should be most liable to the affection. The enlarged pupil and increased illumination after a linear extraction, have been suggested; but were not present in Benson's case, as well as others. The symptom is a very interesting one, and deserves further study.

R. A. LUNDIE.

## *REPORT ON LARYNGOLOGY.*

1. **Obertüschen.**—EIN FALL VON LUPUS DES LARYNX. (A Case of Lupus of the Larynx.) *Centralblatt für klinische Medecin*, 22nd Sept. 1883.
2. **Semon.**—UEBER DIE LÄHMUNG DER EINZELNEN FASERGATTUNGEN DES NERVUS LARYNGEUS SUPERIOR. (On Paralysis of the Individual Fibrils of the Recurrent Laryngeal Nerve.) *Berlin. klin. Wochenschrift*, Nov. 12, 19, 26; Dec. 3, 1883.
3. **Cadier.**—AUTO-INOCULATION LARYNGÉE DE LA TUBERCULOSE PAR LE CONTACT DIRECT DES POINTS SYMÉTRIQUE DES CORDES VOCALES. (Laryngeal Self-Inoculation of Tubercle by Direct Contact of Symmetrical Points on the Vocal Cords). *Annales des Maladies de l'Oreille, du Larynx et des Organes Connexes*, September, 1883.
4. **Fletcher Ingals.**—TREATMENT OF LARYNGEAL PHTHISIS. *Archives of Laryngology*, October, 1883.
5. **Johnson.**—REPORTS OF FIVE CASES OF CONGENITAL TUMOUR OF THE LARYNX. *Archives of Laryngology*, October, 1883.
6. **Elsberg.**—REFLEX AND OTHER PHENOMENA DUE TO NASAL DISEASE. *Archives of Laryngology*, October, 1883.

1. **Obertüschen on Lupus of the Larynx.**—The objective appearances in this case were as follow:—(1) The epiglottis thickened and ulcerated at its free margin—especially in the median line, where the loss of substance was marked. On the floor of the ulcerated surface, and in its immediate neighbourhood, were numerous granulations of different sizes. In three places cicatricial tissue in small patches was seen. Of the vocal cords nothing was visible—whether owing to their being concealed by the thickened epiglottis or destroyed by ulceration is not stated. Granulations and ulcers were also seen in other parts of the larynx. Treatment, consisting of the application of the galvanic cautery and the internal administration of the iodide of potassium, was adopted. The diagnosis was subsequently confirmed by the appearance of the disease on the face.

2. **Semon on Paralysis of the Individual Fibrils of the Recurrent Laryngeal Nerve.**—This paper must be considered as one of the most important contributions to laryngology of the past year. It is important not only to the specialist, to whom it explains much that has hitherto been involved in obscurity, but to the physician. The main object of the paper is to point out that lesions which involve the recurrent laryngeal nerve trunk or the spinal accessory nucleus commonly give rise to paralysis of abduction, producing immobility of the vocal cord in the position of phonation. On the other hand, Semon believes that, if one or both cords are seen to be immovable in the position of inspiration, this fact should lead the observer to expect that the paralysis is due to local or functional causes. We think the author has fully

proved his case, alike by his criticisms on the views of authors whose observations seem, at first sight, to contradict his own, and by adducing a large amount of clinical and pathological evidence. Thus we now know that pressure on the trunk of the recurrent laryngeal nerve produces immobility of the cord in the position of phonation—*i.e.*, in the middle line. Semon goes on to show that this condition is apt to exist without attracting any attention to the larynx, for it may produce neither loss of voice nor marked shortness of breath, and he concludes his paper with the assertion that "laryngoscopic examination is a duty in all cases of existing or conjectured disease which may attack the trunks of the motor nerves of the larynx, even when no symptoms are present which seem to demand such an examination."

3. **Cadier on Laryngeal Self-Inoculation of Tubercle by Direct Contact of Symmetrical Points on the Vocal Cords.**—The author describes the laryngoscopic appearances in five cases in which there was in the beginning an ulcer of one vocal cord only. At first swelling, and then ulceration of the corresponding point of the opposite cord was observed. Cadier also draws attention to the fact that during this process the voice may return, as in phonation the swelling of the opposing cord fills up the ulcer in the one first affected.

4. **Fletcher Ingals on Laryngeal Phthisis.**—In this paper the author gives many and valuable hints on the treatment of laryngeal phthisis. As a sedative application he applies with a brush the following solution:—Morphia, gr. iv.; acid. carbol.; tannin, aa. grs. xxx.; glycerine; aq. aa. ʒiv. He has also used eucalyptol as a topical application, and has found that it exercises a marked effect on tubercular ulcers of the larynx.

5. **Johnson on Congenital Tumour of the Larynx.**—Dr. Johnson gives the histories of five young children who had since birth been afflicted with dyspnœa, and in whom the cry had always been hoarse and unnatural. In all, these symptoms depended upon the presence of papillomatous growths in the larynx.

6. **Elsberg on Reflex and other Phenomena due to Nasal Disease.**—This author has observed that nasal disease may produce the following conditions:—(1) Melancholia; (2) chorea; (3) reflex epilepsy; (4) supra-orbital neuralgia, headache, and migraine; (5) gastric disturbance, &c.; (6) uterine disorders and affections of the genito-urinary mucous membrane; (7) pain and disordered functions of the organs of sense; (8) numerous affections of the extra-nasal respiratory tract, among which are especially prominent the various alterations of the speaking and singing voice, laryngeal cough, glottic spasm, and bronchial asthma.

P. M'Bride.

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## ERRATA.

In No. 10 of the *Journal*—

Page 223, 17th line from top, *read* "Weber Liel."
" " 8th line from foot of page, *read* "Dubranle."
" " 11th line from bottom, *for* "universally" *read* "inversely."
" 224, 12th line from bottom, *read* "Shrapnell's."

[Owing to an inadvertence, the author did not receive a proof for correction.—C. W. C.]

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## ORIGINAL ARTICLE.

### THE SENSORY AND THERMAL DYNAMICS OF THE SKIN.

BY D. BEATTIE BAIN, M.D.

(*Continued from page* 286.)

THE internal organs, and especially the muscular and glandular structures, are the great producers of heat, and doubtless part with some of it to the cooler regions on the surface by mere conduction or contiguity. The skin is the coolest tissue of the body, naturally from its situation, but also partly because its extensive epidermic layer and its hairs evolve no heat apparently, for oxidation has not been found to take place in them. But the circulating blood, warmed in the active heat-producing interior, finding its way uniformly to all the cooler superficial tissues, to which it gives up much of its heat, and returning its cooled stream back to the hotter parts, materially assists in equalising the general temperature, and maintaining it at its normal mean of blood-heat. This is evidenced by the fact that the venous blood derived from the skin is, unlike all other venous blood, cooler than the arterial. The skin, by its extensive area and its vascularity, and surrounded as it is by a medium whose temperature is usually many degrees below that of the blood circulating through it, and of the tissues of the body generally, constitutes the main regulator of body-heat. And this it does by chiefly affecting the heat-loss, of the whole of which it can ordinarily account, according to Helmholtz, for 77½ per cent. Heat is being constantly lost from the surface by simple radiation. It is likewise abstracted by conduction to colder objects in contact with the skin, commonly clothes and the surrounding air. The colder the air, and the more it is in motion, the greater is the quantity of heat conducted off from the surface, as is painfully felt in a strong-blowing east wind. Besides, the different excreta thrown out of the body withdraw some amount of heat; but much the largest share is removed by the sweat. And the evaporation of this secretion, continually going on to some extent, and occasionally in very copious measure, effects the greatest heat-loss of all. These physical causes of loss are always in operation more or less, and may be to such a degree as to threaten life were not some vital action to come into play to save the organism. The heat-sensation of the skin supplies a guide to us, informing us of danger on the one hand from too great a loss of heat, when recourse may be had to thick clothing, or a warmer air, or muscular work; and on the other, from too large an accumulation of it taking place in the blood, when thin clothes, which are also good conductors of heat; or cool air, or cold water may be resorted to for the purpose of increasing surface-loss. The tingling sense of warmth felt in the skin after muscular exercise tells of the cutaneous vessels being dilated and full of hot circulating fluid, and this of itself assures us of an active cooling going on to cope with the felt increment of body-heat from increased muscular contraction and consequent oxidation. A compensating process is always at hand to preserve the wondrous balance of temperature; and when, as in the beginning of fever, we experience a sense of severe cold in the skin which makes us shiver, while at the same time we are otherwise conscious of a febrile heat, we know that this compensating power is in abeyance, and that we are in a state of disease. This powerful tetanic contraction of the surface-vessels, from irritation of the vaso-motor centres as it appears to be, while body-temperature is rapidly rising, is an anomaly, and the rigor or sensation of cold in such circumstances announces to us that it is so, and we at once set about to rectify the abnormal process. Other means possessed by the body for so regulating heat-loss as to preserve the normal standard of temperature, are the changes brought about in the state of the circulation, especially by heat and cold. Increased production of heat in the tissues, ingestion of warm fluids, or high external temperature, stimulates the vaso-motor centres which excite the activity of the heart and dilate the blood-vessels, and thus send the blood in fuller and quicker stream through the arterioles of the skin. A vast sheet of hot blood occupies the cool and cooling cutaneous area, for the heat directly dilates the surface-capillaries as well; and when necessity demands, the skin may thus relieve the organism of a very large increment of heat by radiation and conduction. The flow of blood through the visceral and heat-producing areas is materially lessened, and the large volume of cooled blood returning to them abstracts largely from their accumulating heat, and so helps to keep the temperature normal. In the healthy body the integument, under the presiding control presumably of a nervous thermotaxic centre, knows how far and no farther to go on with its heat-dissipating work. When the contrary necessity arises, when there is a diminished oxidative activity of the tissues or a low surrounding temperature, the opposite conditions are found, and the skin shrinks, becomes pale and cold, the blood retreats from the contracted surface-capillaries to the heat-producing interior, and much heat is thus conserved. In the case of the varnished rabbit, paralysis of the superficial vessels allows a large accumulation of blood in them, and a consequent rapid loss of its heat by conduction through the gelatinous coating, while the poisoned condition of the tissues in some way affecting the thermotaxic nerve centres (most likely from the retention of $CO_2$, according to some recent observations by Roy, and some also by Fränkel) prevents a sufficiently counterbalancing production of heat in the interior, which cools rapidly, and the animal dies, like all homothermous animals which die from low temperature, with symptoms of asphyxia. Burdon-Sanderson concludes that there is here an increased production of heat because there is an increased heat-discharge; but it scarcely follows, and besides, Becquerel and Breschet found in the muscles and the deeper parts from the very beginning a steady and rapid fall of temperature till death. Whenever, therefore, from the demands of elevated temperature, the vaso-motor nerves, acting as I believe consentaneously with a thermotaxic mechanism, raise the general blood-pressure, increase the action of the heart, dilate the cutaneous arterioles, or in any way cause a greater quantity of blood to pass through any portion of the skin in a given time, that portion of the skin becomes redder and hotter, and thereby gives off a proportionately larger amount of heat, and *vice versâ*. But besides this mode of operation of the vaso-motor and thermotaxic nerve-fibres, the sweat-secretory nerves may be brought into action for further regulating the body-heat by loss; and, indeed, secretion and evaporation are often the most powerful of all these contrivances. In the ordinary occurrence of active muscular exercise we find that the increased number of muscular contractions results in an active over-production of heat for the time, which has to be eliminated if the vital processes are to continue; that for this end the respiration and circulation are quickened, the blood-vessels of the skin become dilated by the temporarily-augmented heat, and full of blood, which loses heat considerably by conduction. And if this does not suffice to remove the excessively evolved heat, a feeling of discomfort is experienced in the skin till the sweat-glands are stimulated to more active secretion, from the excitation by the warm blood circulating in the dilated vessels around them, and by the secretory nerve-fibres as well as by the sweat-centres. And hence sweat is poured out on the skin, which also carries away with it an additional amount of heat, and further cools the surface by simple contact of a cooling liquid. But this secreted fluid is more or less rapidly converted into vapour; and the more rapidly it is so, the greater is the amount of heat abstracted from the body in a given time, the heat used up in the process of evaporation becoming latent. Thus, after even continued and violent exertion, however great the production of heat, it is fully met by a commensurate loss, and the normal temperature is not in the least disturbed. But if after prolonged and severe exertion, when the nerve-centres and the heart are greatly exhausted, and when heat is being speedily lost by sweat-evaporation, a sudden chill is received, such as by sitting on the damp and cold ground, or drinking a copious draught of cold water, this added withdrawal of heat may so depress the heart and nervous system as to cause fatal syncope, or set up peritonitis, enteritis, or other internal inflammatory action from the reflux of cold blood to the interior. Celsus remarks, "*Ex labore sudanti frigida potio perniciosissima est.*" By the constant and rapid vaporisation of the secreted sweat, a marvellously large increment of heat may be occasionally disposed of. In tropical climates and in hot summer weather, when the temperature of the atmosphere is equal to or even above blood-heat, the only means which the economy possesses within itself for maintaining its mean standard of body-heat is evaporation by the skin, aided to a small extent by the other excretory organs, and by diminished heat-production. And even this sometimes proves incompetent to remove the necessary quantity of the accumulated heat, which overpowers the nervous centres, and heat-apoplexy and sunstroke result. But even in exceptional and extraordinarily high temperatures, such is the enormous amount of heat which cutaneous evaporation is capable of using up and so withdrawing from the organism, the body-temperature may still be preserved at or little above the normal point. The well-known case of Chabert, the "Fire-King," who in the last century in London exhibited himself in a chamber heated up to 600°F., and who by drinking freely of cold water, and perspiring actively, and evaporation in the dry heated air being rapidly effected, was able to remain in it unhurt for some time, has an almost apocryphal flavour about it. The furnacemen employed by Chantrey the sculptor were sometimes exposed to a heat of 350°F. In such cases the enormous external heat must be expended in effecting evaporation which, to preserve life, must therefore be rapid; and when we consider the large amount of heat necessary to evaporate to dryness a kettle full of water, these results do not appear so incredible. Lewes professes himself totally unable to explain the startling difference between the body-heat and the external temperature in these cases, and considers there must be some other factor at work than evaporation alone; but he does not apparently appreciate the large mass of heat required for vaporising liquids, and he besides overlooks the fact that in such conditions heat-production in the body must be minimised, since he says it proceeds all the same. For in warm surroundings heat is not only lost by evaporation, but generation of heat is diminished, and the reverse is the case in low temperatures. The effect of cold weather is to stimulate the thermotaxic centres by which the activity of the heat-producing processes is increased, and at the same time the loss of heat from the skin is lessened by the contracted condition of its blood-vessels and the complete absence of sensible perspiration: the heat is shut in to some extent. Heat is so quickly lost by conduction in frosty air that even vigorous physical effort, while it may maintain the body warm, may hardly induce perspiration, for heat-production may be just sufficient to replace the loss. The continuous and complete evaporation of even insensible perspiration gives to a cold dry east wind its peculiarly biting character; for it is not only chilling from its mere coldness, but by its dryness the quick evaporation from the surface abstracts more heat and more rapidly than the heat-producers are able with sufficient promptitude to supply; and the cutaneous circulation being reduced to a minimum, the sense of surface-warmth is for the time being lost. A moist west wind, on the contrary, is felt to be mild and genial, because the heat-withdrawing process of evaporation is partially stayed. In moist air, a temperature little raised above blood-heat soon proves fatal from the absence of the cooling action of evaporation. This was proved by the experiments of Delaroche. A sultry damp day, or a climate which is hot and moist, is found to be uncomfortably warm. And it is this that constitutes the danger to some persons of a Turkish bath, especially if their skin perspires with difficulty, or if their heart and blood-vessels are unequal to a considerable strain of tension. The mechanism of perspiration, then, provided there exist conditions favourable to effective evaporation, operates as a potent preserver of the balance of temperature, where that is in danger of rising to too great an elevation from whatever cause,—be it increased production from tissue-oxidation through muscular work, mental emotion or even abnormal states; or be it diminished loss from external heat—by dissipating just enough of the superfluous heat from the surface as to maintain the general body-temperature at its uniform level. As Huxley happily describes it, the blood is like a system of hot-water pipes which can be cooled at pleasure by laying damp cloths over them. And equally when the temperature runs the risk of falling too low from an excessive withdrawal of heat by external cold, or from a feeble functional activity of the tissues as during rest and in states of starvation and debilitation, the sweat-mechanism usually ceases to act, and thus saves the organism from much loss by evaporation. This, I believe, is brought about by the stimulus of the thermal sensory nerves of the skin conveyed to a thermotaxic nerve-centre which co-operates with the vaso-motor system of nerves. For in winter we produce more heat and preserve it by losing less by evaporation and almost none by visible sweat, while loss by radiation and conduction is greatly retarded by the blanched integument; and in summer we part with much heat by the evaporating sweat and the congested skin, while we produce as little as is compatible with the performance of necessary vital processes. And yet all the time the temperature of the body practically remains at the invariable point of about 98°F. The conclusion that this is the result of constant nervous control, unconscious and involuntary, seems irresistible.

The influence of the skin in regulating the body-temperature through heat-production, is not so apparent nor so direct; but it is nevertheless real, and of great importance. Placed as we are, in this temperate climate at least, in a medium usually many degrees below blood-heat, it is clear that a loss of heat from the surface, even when clothed, is constantly going on, and that it is indispensable for securing a fixed degree of body-temperature so essential to health and life, that heat be as constantly generated to supply the loss. But since also we are continually exposing ourselves to temperatures of widely varying degree, it is equally clear that the heat-production must be under incessant regulation, so as just to meet the changing demands of heat-loss, and no more. That this wonderful balance is held by the nervous system is now pretty fully established and generally recognised; and there are reasons for believing that for the performance of this essential function there exist special thermogenic and thermo-inhibitory nerve-centres and nerve-fibres. The influence exerted by the skin on the production of heat is chiefly exemplified in the effects of cold, which, either in the form of cold air or cold water directly applied to it, undoubtedly favours the development of heat in the body: that is, the loss of heat by the skin arouses the internal heat-producing processes to increased activity. The organism is thereby urged to an almost spontaneous act of self-preservation. Under the stimulation of this thermic impression conveyed from the sensitive cutaneous surface, the thermogenic centre is prompted to send an impulse along its calorific fibres to the muscular and glandular tissues, which are the predominant producers of heat, exciting in them increased action, and therefore increased tissue-oxidation and formation of heat. It is a reflex nervous process. Tissue-oxidation is synonymous or co-extensive with heat-production, and its degree finds pretty accurate expression in the amount of $CO_2$ and urea eliminated. Various investigators have repeatedly found that the application of cold to the surface of man and homothermous animals in health invariably causes their temperature to rise, and augments the quantity of $CO_2$ excreted and of O consumed. Senator and some others deny that there is anything more in this than the driving in of the blood to the internal and protected parts, and the lessening of heat-loss by contraction of superficial vessels; while they state that increased heat-production, as evidenced by an increase of excreted $CO_2$, by no means regularly occurs. Liebermeister and many more, however, insist that there is more than this; and their numerous experiments certainly appear to substantiate their opinion. They found that the distinction between cold-blooded and warm-blooded animals consists in this, that in the former tissue-oxidation increases with heat, and they become warmer, and diminishes with cold, and they become colder; while the reverse obtains in the latter as regards tissue-metabolism, and their temperature remains practically the same. That this maintenance of an even temperature by the warm-blooded animal, despite an active loss, is the result of an increased production of heat within itself by means of nervous influence, was shown experimentally by Pflüger. By abolishing the action of the nervous centres, or cutting off communication between them and the tissues by urari-poison, section of the medulla, and other means, he found that these warm-blooded animals became affected in an exactly similar way as a cold-blooded frog on exposure to heat and cold. Tissue-metabolism was markedly decreased by cold, as evidenced by the lessened excretion of $CO_2$, while the temperature fell steadily; and Röhrig and Zuntz, by wrapping urari-poisoned rabbits in wool after a cold bath, found the temperature continued to fall, proving that this resulted from the diminution of heat-production, and not from increased loss of heat. And that this increment of heat from the stimulus of cold at the surface in some way originates largely in the muscular tissue through the operation of thermogenic nervous impulses directed to it, is rendered probable by the investigations of Samuel. He found that healthy rabbits when subjected to even severe cold, showed very little alteration of temperature; but that by ligaturing the main arteries of the limbs, or dividing the motor nerve-trunks, the temperature rapidly became so low that they died. The same inferences may be drawn from the instances of urari-poisoned animals, and also from clinical cases of motor paralysis; the function of the muscular nerve-fibres being suspended, muscle-metabolism and consequent generation of heat in them fail to be effected when the excitation of cold is applied. The very shivering, teeth-chattering, and sneezing which are so familiarly known to mark the effects of cold, are the reflex efforts of the nerve-centres to provide, through the muscles, a compensatory and protective supply of heat. Colasanti, when experimenting on guinea-pigs, found that they constantly eliminated a remarkably increased amount of $CO_2$ under the influence of cold; but he also observed the important and interesting fact, that when pyrexia was produced in them, this result did not follow—a diminution rather than increase of heat-production occurred. And pyrexia certainly affects the nervous centres; while the wasted and enfeebled condition of the muscular system, after severe fever, points to the probability of its being especially concerned in the febrile process. The muscular pains present at the commencement of many febrile conditions may also possibly be similarly accounted for. It is possible that in pyrexia the thermo-inhibitory centre is paralysed, and that cold, by withdrawing a certain amount of heat, may proportionately restore it to functional activity, and so diminish thermogenic action. At all events, the thermogenic process in fever does not respond to the stimulus of cold in the normal way. Indeed, there are various features of the febrile state which strongly suggest not only a defect of heat-loss, but a persistent increase of heat-formation, carried out by virtue of some nervous mechanism temporarily deranged. The ordinary mode of "catching cold" points to nervous cutaneous impressions acting in abnormal nervous states; for usually only when the general health is deteriorated, and the vitality of the nervous centres enfeebled, will the surface "chill" from a prolonged exposure to cold air induce, as it is almost certain to do, a febrile process. Here the contraction of the cutaneous vessels by the chill not only shuts in heat, but seems to be followed by an excess of natural energy of the thermogenic nerves which overdo their work, the inhibitory centres being for the time overpowered; an over-production of heat unchecked, along with lessened loss, hence results in fever. And the welcome way in which many fevers critically and spontaneously change from the dry hot condition of skin, to a pleasant evaporating and cooling moisture, can hardly be caused otherwise than by nervous influence. In this event, an inhibitory mechanism would appear to have re-established its sway, and heat-production becomes restricted, while the hitherto paralysed sweat-nerves and glands come to the rescue. But it is different in other cases, showing that in certain febrile conditions at least, heat-production is even a more essential part of the process than diminished loss. In rheumatic fever and phthisis, we may find profuse perspiration which does not in any degree lower the body-temperature, which may on the contrary rise, although the sweat must, at the same time, be withdrawing heat considerably. And after injection of pilocarpine in the beginning of the cold stage of intermittent fever, Ringer found that a copious secretion of sweat may take place without affecting or curtailing the attack. The same results were obtained in typhoid, scarlet, and other fevers, by the artificial production of perspiration with aconite and hot-air baths. The very rigor experienced at the onset of rising pyrexia is comparable to the sensory and temperature effects of the application of cold itself; it is apparently a violent contraction of the cutaneous vessels from some irritation of the vaso-motor centre, as held by Traube, with a corresponding impression of the loss of surface-warmth, succeeded by increased heat-production, as evidenced not only by rising temperature, but by augmented excretion of $CO_2$. Hüter found, when he produced septic fever in frogs, that the cutaneous circulation was greatly diminished. Leyden and Fränkel, by inducing suppurative fever in dogs, observed a regular increase in the excretion of $CO_2$ which kept pace with a similar increase in tissue-oxidation and in body-temperature. But they were convinced that increased temperature did not arise alone from increased metabolism in fever, but that the loss of cutaneous evaporation, and a changed condition of the cutaneous circulation, in some way affected the "regulator of heat"; and that as much heat was not removed in a given time by conduction and radiation as would be the case in health with an equal production of heat. On the whole, then, it seems evident that the pathological phenomena of pyrexia, as well as the direct physiological effects of the application of cold to the skin, lend their weight to the presumption that a special nervous mechanism is concerned in the regulation of the body-heat, not only by varying surface-loss, but also by the increased production of heat and its control within specified limits. It is scarcely credible, especially in the face of all these facts, that mere contraction of the superficial vascular area, and an accumulation of warm blood in the internal tissues, even with the aid of clothing, food, and muscular exertion, can adequately explain the maintenance, by men used to a moderately warm atmosphere, of an even body-temperature throughout a severe Arctic winter. Moreover, Beneke clearly proved by his careful investigations that cold-bathing, and especially sea-bathing, invariably increases the excretion of $CO_2$ and urea, and that the body-weight decreases unless more food is ingested; that tissue-waste, and therefore heat-production, are stimulated, which cannot satisfactorily be accounted for except through special nervous co-operation.

The existence of a differentiated thermo-inhibitory nerve apparatus has already been hinted at. It is reasonable to suppose that if there is some nervous mechanism actively engaged in the production of heat and in its dissipation, there equally exists some arrangement for controlling its over-formation. Damp clothes or cold air in contact with the surface of the body appear in the first instance to stimulate in the usual way the metabolism of the tissues, and if the organism is healthy, or if active exercise is maintained, the nervous system responds to the altered circumstances by not only encouraging the necessary dissipation of heat from the surface, but by checking also its over-production within, so that the organism suffers no harm. But in other conditions, when the nerve centres are more or less exhausted, this natural heat-producing process goes on to excess, the tissue-oxidation, being allowed to surpass the heat-loss, runs on without hindrance, the temperature rises, and a febrile condition is established. This looks as if the effect of excessive surface cooling is not only an increased activity of tissue-oxidation, but also a certain amount of paralysis of an inhibitory mechanism. In cases of hyperpyrexia the withdrawal of heat by the cold bath seems to arouse this inhibitory centre to action, and the temperature remains lower, and occasionally continues to fall for some time afterwards. Sanders-Ezn found not only that rabbits excreted more $CO_2$ after sudden exposure to cold, but that they excreted less on exposure to heat. Tissue-change must therefore have been diminished by the latter, as it must also have been in the formerly quoted case of the "Fire-King." Tschechichin, experimenting on rabbits, found that irritation and section of the spinal cord were respectively followed by a rise and by a fall of temperature, while section of the medulla at its junction with the pons always resulted in a rise. Naunyn and Quincke obtained in dogs always a fall at first, followed ultimately by a rise, after section of the cord. The fall they attributed to increased surface-loss from vaso-motor paralysis and consequent dilatation of the cutaneous capillaries, by preventing which, by wrapping the animals quickly in wool, the temperature began to rise sooner. The temperature rose more markedly in proportion to the nearness of the section to the medulla. They explain the rise of temperature after section, by an increased production of heat, which soon more than counterbalances the surface-loss by capillary dilatation. They, as well as Tschechichin, consider that section of the higher parts of the cord and medulla removes the operation of a chief thermal inhibitory centre situated in the cerebrum, and which may control secondary centres lower down. External heat seems to excite this centre, which co-operates with the vaso-motor centre in the medulla which increases surface-loss; just as cold appears to stimulate a thermogenic centre, which in its turn calls in the aid of the vaso-motor system to diminish surface-loss. Fränkel endeavoured to prove experimentally that normally the $CO_2$ produced in the tissues becomes a factor of heat-regulation. Seeing that Heidenhain had first shown—a fact further elucidated by Ostroumoff—that the medulla regulates the body-heat by affecting, through the nervous system, the superficial circulation, he considers that the $CO_2$ stimulates the centres situated in the medulla, and so aids in restricting a rise in the general temperature, it may be by increased loss or diminished production or both. He cut the sciatic nerve of a dog, and inflated its lungs with a varying combination of O, $CO_2$, and N. On the non-paralysed side he found the superficial temperature raised, while the cutaneous area of the paralysed side remained at the same degree or fell. He is therefore of opinion that the increased production of $CO_2$, which occurs in raised temperatures, is one of the factors which regulate the activity of the nerve apparatus that governs the extent of heat-production. Bernard advances even farther, and thinks he has proved by experiments on the cervical sympathetic, the auricular nerve, and the chorda tympani, that the sympathetic exercises a frigorific or thermo-inhibitory influence, and the cerebro-spinal nerves contain calorific fibres. He showed that an impression of pain conveyed through a sensory nerve produced a reflex lowering of temperature by the action of the sympathetic, while a rise was observed in the part deprived of sympathetic influence, and that without any proportionate vascular changes. This was also observed by Knock. And Eulenburg and Guttmann state that the icy coldness and shivering which sometimes occur in the paroxysm of hemicrania are explained by reflex irritation of the vaso-motor centre in the medulla. Heidenhain, on the other hand, asserts that irritation of sensory nerves lowers the temperature of the blood by reflex irritation of the medulla accelerating the circulation, and at the same time dilating the cutaneous vessels, according to Ostroumoff, thus cooling the blood by surface-loss and by rapid distribution. The irritation of external heat may bear this out, but the equally irritating effect of cold militates against it. Brunton remarks that irritation of a sensory nerve, as in conjunctivitis, produces dilatation of vessels in that part, but a contraction of all other vessels throughout the body, which would rather tend to shut in heat, and raise the temperature of the blood, which inflammatory action from sensory irritation certainly does. However, from the complicating action of the all-pervading vaso-motor nerves, all such experimental observations have probably some truth combined with error, so that it is difficult to arrive at exactitude of results. The effect of aconite, observed by Ringer in certain cases where temperature was thereby greatly lowered without any apparent increased heat-loss by the skin, suggests either some depressant action on the thermogenic process, or a stimulation of an inhibitory centre. A destroying lesion of the spinal cord has frequently been observed to be followed by a persistent elevation of body-temperature, even in the paralysed parts, which favours the probability that a power of restraining heat-production must in those cases have been suspended.

The application of severe cold, or prolonged exposure to a very low temperature, may withdraw heat so rapidly and to such an extent that the tissue-oxidation is not able to keep pace with it. The vital activity of the tissues themselves may be gradually lost. The responsive power of the nerve-centres, as well as surface sensation, becomes enfeebled; the respiratory centre flags, and gets exhausted; the heart fails; consciousness and muscular power are abolished; oxidation becomes impossible, and death follows. The skin has a bloodless, or may latterly have a livid hue, and the heart, lungs, and brain are found to be full of venous blood, similar to the condition met with in asphyxia. It is death from general depression of all the functional resources, and $CO_2$ poisoning. The narratives of Arctic travellers furnish us with cases illustrative of this. Even a cold bath, and particularly in the open air, when one is exhausted with muscular exercise, or the system generally in a condition of atonicity, may depress the nervous centres so much by the sudden shock as to result in fatal syncope. The powerful effect of cold on the respiratory centre is familiarly seen in the deep, panting, and irregular breathing which commonly follows at once on getting into cold water. Inspiration is greatly deepened as if intentionally to obtain more O for the tissues to use up and increase heat. The physiological action of a cold bath is twofold. There is a physical abstraction of heat which depresses the nerve centres and the tissues generally, having an exclusively destructive tendency; and there is a vital nervous stimulation by the sensation of cold which excites the centres to an increased saving functional activity. In proportion as these two factors predominate is the advantage derived from cold-bathing. It is often observed that persons with constitutions possessing but feeble vital and re-active power are invariably depressed and ill after every attempt to carry out a fancied salutary cold bath, from an almost total want of response on the part of the nervous system, the very utmost they can bear being a momentary cold sponging in a warm room, or a cold shower while partly immersed in a warm bath. The contact of moderately warm water with the sensitive skin has a soothing influence on the nervous system, producing neither shock nor much stimulation. A hot bath, like a cold one, is exciting, but not tonic as the cold is, and is usually followed by some amount of exhaustion and depression. If, however, a cold shower-bath succeeds it, its tonic action certainly prevents the weakening effect of the heat. The gradually increasing anæsthesia of the skin which occurs in persons dying from exposure has clearly a powerful causal influence in hastening the progress of the fatal depression, and heat-abstraction goes on without any protecting nervous excitation. Somewhat similar phenomena are also witnessed in opium-poisoning, where surface sensibility and consciousness are alike wanting. This seems still further to testify that in the nerve-arrangements of the skin, the economy possesses a power of affecting a heat-regulating nervous mechanism.

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## *REVIEW.*

**The Story of the University of Edinburgh during its First Three Hundred Years.** By Sir ALEXANDER GRANT, Bart., &c. In two vols. 8vo. With Illustrations. London: Longmans, Green & Co., 1884.

### SECOND NOTICE.

WE have shown in our former article that the proposal, originally suggested by Mr. Syme, to open the curriculum for the degree of Doctor of Medicine to a certain extent, was made by the Town Council to embrace, not only the English and Irish schools, as its proposer had intended, and as a majority of the Medical Faculty desired, but also the Extra-Academical Medical School of Edinburgh, conducted in great measure by graduates of the University, but who were not as teachers connected with it. This School had always held a high position, and been adorned by teachers of great eminence, and it will be readily understood that its existence side by side with the University was of service to the latter, not only by maintaining a rivalry calculated to stimulate the energies of both, but also by affording the means of teaching branches, the professors of which had become incapable, and were unwilling to resign, as in those days there was no provision for retiring allowances, and also by furnishing an admirable training ground for aspirants to the office of professor, and thus enabling the electors to judge of their powers of communicating instruction. The teachers in this *Extra-Academical* School (as it has been called) had up to this time been heavily handicapped in the race with the University professors; for, while attendance on their prelections qualified for the licence of all examining boards in the United Kingdom, or universities, and also for the degree of the London University, they were not accepted as proof of proper teaching by the University of Edinburgh,—so that those who sought her degree were compelled to attend her professors, often admittedly inferior to the out-door teachers on the same subject; nay, some who could afford it, feed professors for their tickets and extra-academical lectures for their tuition. The action of the Town Council, followed by the successful result of the lawsuit in which it involved them, changed all that, and candidates for the University degree were now allowed to take a reasonable proportion of the classes required for the curriculum out of the walls of the University.*

But to complete this part of the subject, we pass over some years, and refer to the University Act of 1858.

In 1826, His Majesty King George IV., in consequence of "certain irregularities, disputes, and deficiencies which have occurred in the Universities of Scotland, calculated to impair the utility of these establishments," appointed Commissioners to visit these universities, and to make inquiries on a variety of subjects connected with them specifically pointed out in the Royal Commission, and "to form a code of proper rules, statutes, and ordinances for teaching, exacting of fees, and granting degrees."

The Commission, of which Lord Aberdeen was Chairman for a short time, and was succeeded by Lord Rosebery, grandfather of the present Earl (whose name does not occur in the index to Sir Alexander's book, the imperfection of which detracts seriously from the value of the book as a work of reference), bestowed great pains on their work, and presented in 1830 an elaborate report, which throws great light on many otherwise nebulous matters. Sir Alexander Grant says:—

> "One of those who took a leading part in the work of the Commission was the Solicitor-General for Scotland (John Hope†); he drew up the 'Requisitions for Returns and Heads of Inquiry' which the Commission issued on the 5th of September to all the universities, ordering answers to be sent in on the 27th. This was an able, searching, and exhaustive document, which prepared the way for the thorough and masterly report ultimately arrived at by the Commissioners."—Vol. ii. p. 38.

In the praise given to that report we cordially concur; but we believe the services of one man who prepared the original draft have never been sufficiently acknowledged—Alexander Earle Monteith, then a young advocate, who acted as secretary to the Commission, and who would certainly in riper years have attained a seat on the Bench, had he not practically withdrawn from practice as an advocate, on his appointment as Sheriff-Principal of Fife and Kinross.

In the curriculum for medical students suggested in this report, provision is made for regulations "to entitle attendance with a private teacher or lecturer to be taken into account" as part of the education required for a degree; but what is if possible of still more importance in connection with our present subject, as showing how in those days the restrictions compelling candidates for the degree to study in Edinburgh, and take the tickets of competent or incompetent professors there, operated; the Commissioners say:—

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* It should perhaps be recorded that the fees charged by the extra-academical lecturers, who had to provide their own lecture-rooms, with all the attendant expenses, were then somewhat lower than those charged by University professors. A condition was insisted on by the latter, and agreed to by the Town Council, that students intending to offer attendance on an out-door lecturer as part of the required curriculum, should be compelled to pay him the same fee as he would have had to pay to the corresponding University professor.

† As Sir Alexander generally tells to what dignities those whom he has occasion to mention, afterwards attained, it is an omission not to tell that Mr. Hope was made Lord Justice-Clerk, an office which he held until his sudden death.

> "Upon this subject (attendance on the classes for which tickets have been taken) we regret the necessity we are under of stating that there has been very serious and extensive abuse. . . . It has appeared from statements made to us that many of them (the students), after enrolling their names, did not even reside in Edinburgh during any part of the Session; and that persons were entitled to be received for examination for degrees, when they produced their certificates, although they may not in truth have attended the classes."—Report, p. 75.

This and many other abuses appear to have arisen from a mistaken idea pointed out by the Commissioners.

> "An idea seems to be entertained by persons of great respectability that the character of the universities as schools of medicine is to be measured by the number of degrees which are conferred by them. . . . It appears to us that the reputation of a university does not depend on the *number* of degrees which are granted by it, but must depend entirely on the nature of the qualifications which the possession of such degrees implies in the persons on whom they are conferred."—Report, p. 68.

The Report of 1830, admirable as it is, remained for a long time barren, until 1857, when Lord Advocate Moncrieff prepared a bill based very much on its suggestions, which circumstances, however, prevented him from introducing; and the ministry with which he was connected going out of office that year, "the honour of bringing in a 'Bill to make provision for the better government and discipline of the Universities of Scotland,' fell to the lot of the Lord Advocate of the succeeding Government, Mr. Inglis, now the Lord Justice-General of Scotland. He obtained the draft bill of his predecessor" (Vol. ii. pp. 90, 91). Further, in his speech introducing in his own bill, Lord Inglis acknowledged his obligations to Lord Moncrieff, "who had furnished him with his materials and a sketch of his plan"; he further stated "that his bill was founded to a great extent upon the Report of a Commission which had been presented to Parliament in 1830." An important portion of the Act was the fourteenth section, which appointed an Executive Commission to frame ordinances for the future regulation of the University in all important points. Great pressure was made on the Commissioners to repeal the permission which the Town Council had secured for candidates for the degree of Doctor of Medicine to take a portion of the required classes from recognised teachers out of the University, but they were not successful; and when the ordinances regulating the giving of degrees were published it appeared that a certain number of classes might still be taken outside the University, although the proportion was somewhat reduced. These ordinances, however, could not come into operation until sanctioned by the Privy Council, and to the Privy Council the Senatus appealed against this, but without effect.

Sir Alexander terms this

> "an expression on the part of the Senatus of their jealousy of the extra-mural teachers," and records that Professor Syme dissented on this occasion from their protest as opposed to the spirit of the age, and because efficient professors need not fear the recognition of four extra-mural classes.—Vol. ii. pp. 110, 111.

A much more formidable and important objection was, however, taken by several of the Royal Colleges of Physicians and Surgeons in Great Britain and Ireland, and the Faculty of Physicians and Surgeons of Glasgow, which Sir Alexander, strange to say, dismisses thus in a single paragraph:—

> "This new arrangement evoked opposition from the medical corporations of Great Britain (among which were the Colleges of Physicians and Surgeons of Edinburgh), who wished to prevent degrees in surgery being granted by the universities. Their opposition was really of a very selfish character; it was an attempt to stamp university degrees as an insufficient qualification for general medical practice, which they

would have been under the terms of the Medical Act of 1858, if the universities, though examining their students in surgery as well as medicine, gave them only a degree in medicine. The corporations were heard on the subject before the Privy Council, but their representations were set aside."—Vol. ii. p. 110.

We feel that the esteemed author of the work before us never would have penned the condemnation of what he terms "the Medical Corporations" (is the University not a corporation?) had he understood the momentous questions which were then at issue owing to the passing of the Medical Act and the Scottish Universities Act in the same year (1858). No doubt party spirit ran high, and some of the medical professors, exulting in the liberty which they thought they had obtained by getting rid of what they regarded as the incubus of the Town Council, allowed that liberty to degenerate into licentiousness, and openly expressed the hope that under the new *regime* the whole licensing of medical practitioners in Scotland would pass from the medical and surgical colleges to the universities, expectations which naturally led to resistance on the part of these bodies, who could scarcely be expected to execute on themselves "the happy despatch," nor perhaps even in all cases to exercise a becoming forbearance and self-restraint. But was their contention either so selfish or so unjust as Sir Alexander would make it appear?

To many of the higher class medical graduates of the University of Edinburgh it had long been matter of regret that the degree of Doctor of Medicine was conferred upon men who were not required to give any evidence of academic culture apart from medical knowledge, and who, if efficiently examined at all, were only so examined on their knowledge of medicine.

Nor was this feeling limited to medical graduates. It was pretty generally entertained by all interested in the welfare of the University who were not actually professors. Sir William Hamilton, one of the most distinguished professors of whom the University could boast, thus gave expression to it, in the *Edinburgh Review*, the article being republished in a collected volume with others in 1834:—

> "The *intrinsic excellence* of a school is not to be confounded with its *external prosperity*, estimated by the multitude of those who flock to it for education. . . . Its degree, with ostensibly higher honours, may be offered at really as cheap a rate as the corresponding licence of less privileged corporations."—"Dissertations," p. 355.
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> "Universities in general, and the University of Edinburgh in particular, were privileged to examine and to authorise candidates for the highest branch of the profession, that is, as physicians, but were not privileged to grant licenses for the lower departments, that is, as surgeons and apothecaries. If, therefore, an university attempt this, it attempts what it has no right to perform; while at the same time, by the attempt itself, it not only derogates from its own dignity, but *commits an act of injustice upon other corporations* (the italics here are ours) by usurping their peculiar privileges."—"Dissertations," p. 630.

The University Commissioners reported in 1830:—

> "It has appeared to us to be a matter of great importance that the persons who are to practise medicine should be men of enlightened minds, accustomed to exercise their intellectual powers, and familiar with habits of accurate observation and cautious reflection; and that they should be possessed of such a degree of literary acquirement as may secure the respect of those with whom they are to associate in the exercise of their profession."—"Report," p. 67.

This, however, was not the idea of the Medical Faculty of the University, who handed in to the Commissioners a paper signed by all their then professors, except Sir George Ballingal, Professor of Military Surgery, and Dr. Hamilton, Professor of Midwifery.

On this paper, so numerously and so respectably signed by the then Medical Professors of the University, the Commissioners somewhat severely remark, after quoting it in full:—

> "The amount of this would seem to be that literature is a positive evil to a physician; that it unfits him for the habits and state of mind which he ought to cultivate; and that it will be an obstacle to his success in practice. It is difficult to conceive that the learned Medical Faculty could have intended to go so far as this; but it is plain that there is much fallacy in the assertions, for it can scarcely be called reasoning, which they here adduce."—"Report," p. 187.

And yet, in the face of these opinions, Sir Alexander Grant assures his readers that "the opposition of the Colleges" to this "was really of a very selfish character," while we have the authority of Sir William Hamilton, himself a professor, that "a university attempting this attempts what it has no right to perform, . . . and commits an act of injustice upon other corporations by usurping their peculiar privileges."

"What is thought, and justly thought, upon the subject by the public, and intelligent English public, appears from the evidence of an able and well informed witness" (says Sir William Hamilton). We cannot make room for the whole of the admirable evidence which is quoted, but restrict ourselves to the following pithy and memorable sentence:—

> "The complaints against the Scottish universities are, that they supply a greater number of doctors than the wants of society require, that they manufacture a baser article than Oxford and Cambridge, affix the same stamp to it, and introduce it in such quantities into the market that the whole cargo is depreciated, and when their coinage happens to be of sterling worth, that its value is lessened by the plated and Brummagem articles that have issued from the same mint."—"Report," p. 632.

In quoting the above it is only fair to observe that the ordinances which the Royal Colleges objected to, did do something, although still too little, to elevate the literary character of recipients of the degree; but that this was accompanied by the creation of two new degrees, Bachelor of Medicine and Master of Surgery, an attempt which, to use Sir William Hamilton's words, "not only derogated from its own dignity, but committed an act of injustice upon other corporations by usurping their peculiar privileges."

The College of Surgeons of England only examined in surgery and the branches subsidiary to it, and the College of Physicians of London, in an evil hour, both for themselves and the profession, declined to take any charge of medical education or licensing, which thus came to devolve on the Apothecaries Company. For all public appointments in England, a diploma both in medicine and surgery thus became necessary, and the medical authorities of the University of Edinburgh, in their anxiety to make their *degree* a *licence* to practise, resolved to give a mastership of surgery along with it as a *bonus* addition without additional education .or examination, and to this the Commissioners agreed, and against the Ordinance No. 5, by which it was ordained, an appeal was taken as stated above to the Privy Council, for the sanction of the Queen in Council was required before the ordinance could become operative.

The proceedings before the Privy Council, dismissed by Sir Alexander Grant in a few lines, were so lengthy as to last for three days,—16th, 17th, 18th January, 1861,—and the verbatim report fills an octavo volume of 312 pages, and so many important principles are involved in the discussion, that in our next article we shall attempt to explain them and still further vindicate the action of the Royal Colleges.

*(To be continued.)* ALEX. WOOD.

# REPORT ON OBSTETRICS.

1. **Garrigues, Henry J.**—ON THE PREVENTION OF PUERPERAL INFECTION. *New York Medical Record*, 29th December, 1883.
2. **Garrigues, Henry J.**—ELECTRICITY IN EXTRA-UTERINE PREGNANCY. *Trans. Am. Gyn. Soc.*, vii. 1883.
3. **Auvard, A.**—DE LA COUVEUSE POUR ENFANTS. (On Artificial Incubation in Infants.) *Extrait des Archives de Tocologie.*
4. **Sappey.**—NOTE ET CONSIDÉRATIONS SUR UN FŒTUS QUI A SÉJOURNÉ CINQUANTE-ANS DANS LE SEIN DE LA MÈRE. (Note and Observations on a Fœtus which had remained Fifty Years in the Fallopian Tube of the Mother.) *Comptes Rendus*, 1883, xcvii. No. 9.

1. **Garrigues on the Prevention of Puerperal Infection.**—In this paper, the author brings under the notice of the members of the Medical Society of the County of New York the methods he has recently adopted in carrying into the actual practice of a large maternity hospital as complete a system of antiseptic midwifery as is possible in a public institution. While a natural labour is a normal physiological process, a woman confined in a charity hospital is placed in an abnormal situation, the risks to which she is exposed during her puerperium are enormously increased, as is proved by a glance at the mortality tables of any of these institutions. The members of the profession in New York have recently had their attention directed to the state of matters existing in the New York Maternity Hospital, which, being a department of a large general surgical and medical hospital, is placed under very unfavourable conditions. In this hospital, we are told that "it used to be rather an exception than the rule to see a perfectly normal lying-in period." Between 1st October, 1882, and 31st March, 1883, 192 women were delivered; of these 46, or almost one in four, were seriously ill; and 39, or almost one in five, suffered from some form of inflammatory puerperal disease. During the year 1882, there were in this hospital 431 deliveries, and of these 14 died, giving a percentage of 3·25.

In October, 1883, Dr. Garrigues adopted an antiseptic system, and the following is a brief outline of the manner in which it was carried out. Bichloride of mercury was chosen; but, "not trusting in the sole effect of a yet untried antiseptic," the author employed several other measures, each of which, he considers, may in some way have contributed to the success of his results.

The hospital was divided into two departments—one for those in whom the puerperium was normal, and one for those in whom the sequence of events followed an unsatisfactory course. For the former there were set apart two wards, each accommodating nine patients, and a smaller ward with accommodation for six patients, besides the delivery room; for the latter class, a large ward and two tents were reserved. Each department had a separate set of doctors, nurses, and utensils. No communication was permitted between these two departments, nor between these departments and the general hospital.

Rapid alternation in the use of the wards was insured by allowing each patient only to remain eight days in the ward to which she had been removed after delivery, transferring her on the ninth day to the convalescent ward. By this means each ward in turn was for a time occasionally emptied. While empty it was thoroughly fumigated with sulphur, the floor scrubbed with soap and water, and subsequently with a solution of bichloride of mercury (1 to 1000). Every piece of furniture in the ward was treated similarly, and the beds were provided with fresh bed-clothes and new straw. On a patient being admitted to the delivery-room at the commencement of the labour, her abdomen, genitals, hips, and thighs are washed with a lukewarm solution of the bichloride (1 to 2000). At least two quarts of the same solution are injected into the vagina, and in protracted labours these injections are repeated every three hours. The rubber sheet covering the bed is washed with the solution (1 to 1000) immediately prior to delivery.

All unnecessary vaginal examinations are forbidden. The medical officers are requested to be satisfied as far as possible, in ordinary cases, with the information derived from abdominal palpation. Before the first examination of the patient, the doctors or nurses wash their hands in the solution (1 to 1000), and if more than one patient is in labour at the time, the same precaution is observed before going from one to the other. Immediately before every examination the whole hand is held in a warm solution (1 to 2000), and no other lubricant is used than the fluid adherent to the fingers. When it is necessary to introduce the whole hand into the vagina, the hand is besmeared with a solution of the bichloride in glycerine (1 to 2000). On the appearance of the fœtus at the vulva, a piece of lint soaked in solution (1 to 1000) is applied to the vulva, and kept there, in order to prevent ingress of air by the alternate progression and recession of the presenting part. With the completion of the second stage, a similar compress is applied over the genitals. The placenta is expressed by Credé's method; if it is necessary to introduce the hand, the vagina is then washed out with the solution (1 to 1000), but not unless. On no account may portions of the placenta or membranes be allowed to remain in the genital tract.

The third stage over, a large intra-uterine injection is given (from two to six quarts), and so hot that the hand can just be held in it. For its administration, Dr. Garrigues has made a curved glass tube, fifteen inches long, a little over a fourth of an inch wide, with a large opening at the end, and eight side-openings, all of which have well-rounded edges, and are placed on the last four inches of the tube. Before the tube is introduced within the uterus, the vagina is thoroughly washed out, and during the passage from the vagina into the uterus the solution is kept running, thus avoiding the introduction of any septic substance into the uterus, and insuring the exclusion of air.

The patient is now washed with the solution (1 to 1000), and the vulva covered with a dressing, consisting (1) of a piece of lint, six by eight inches, folded lengthwise, so as to be three inches wide; (2) outside that a piece of oiled muslin, nine by four inches, is placed; (3) a large pad of oakum is then added; and (4) the whole is fastened with four pins to the binder in front, and behind by means of a piece of muslin, eighteen inches square, and folded diagonally, so as to form a kind of boat, five inches in width, for the reception of the other pieces of the dressing. This dressing is changed four times in the twenty-four hours; at the same time the parts nearest the genitals are washed with the solution. No vaginal injections are given except in the rare cases in which the lochia become offensive. The dressing is continued so long as the patient remains in bed. Patients are generally discharged between the 10th and 15th days after their confinement. The floors of the ward are sprinkled with the solution (1 to 1000) four times a-day. Visitors are not allowed into the wards, and this rule extends even to the clergy, who are only admitted in serious cases.

The bichloride of mercury having a corroding action upon metal, all metallic instruments are purified with carbolic acid. All soiled linen is immersed for at least one hour in the solution (1 to 1000.)

The result of this procedure has so far been satisfactory. Since its introduction into the New York Maternity Hospital, ninety-seven women have been delivered, there has not been a single death, and the amount of sickness has been minimised.

Finally, Dr. Garrigues points out some of the great advantages the bichloride of mercury has over carbolic acid. It is, he maintains, a more reliable disinfectant; it is not only free from odour, but is itself an excellent deodoriser; it affects the skin of the accoucheurs and nurses much less; and it has the additional advantage of being less costly.

EDWIN BAILY.

**2. Garrigues on Electricity in Extra-Uterine Pregnancy.**—In this paper, H. J. Garrigues strongly advocates the treatment of extra-uterine pregnancy at an early stage by means of electricity. This is a method of operative interference which has of late years gained ground in the United States, but which has not as yet received much, if any, support on this side of the Atlantic; for out of the eleven cases collected by the author in which electricity was employed to arrest the development of the fœtus, two only occurred in Europe, one in Italy by Bachetti, and one in England under the care of Braxton Hicks. Again in a series of fifteen cases of extra-uterine gestation treated by Freund, electricity was only once employed.

The writer first records a case in which he succeeded in arresting pregnancy at the third month by means of Faradisation, thus obtaining a complete cure.

The patient was nineteen years of age, had been married ten months, and had menstruated regularly till within two months of the time when she came under the author's observation. She complained of paroxysmal attacks of pain in the right iliac region, accompanied by nausea and weakness. On examintion, the uterus was found anteflexed, displaced to the left side, and of normal size, the sound passing in two and a-half inches. On the right side was "a soft, elastic, round tumour, which was as large as a hen's egg, slightly movable and sensitive to pressure." From this history, taken in conjunction with the above signs and the mammary changes, extra-uterine pregnancy in the right fallopian tube was diagnosed, and a few days afterwards the treatment by Faradisation was commenced. The positive electrode was applied over the abdomen, while the negative pole was introduced per vaginam and pressed up against the vaginal roof on the right side, The application was made for ten minutes, the current never being so strong as to cause any great suffering. In all ten applications were made at intervals of one or two days, the patient going about attending to her household duties all the time. On examination it was now found that the tumour had diminished to the size of a walnut, the pain had disappeared, and the mammæ returned to their normal condition.

The ten other cases collected by the author we venture to present in a tabular form as follows :—

| *Obstetric History.* | *Diagnosis.* | *Treatment.* | *Result.* | *Author and Date.* |
|---|---|---|---|---|
| Case I.—*Æt.* 29; had four children; always healthy. | Extra-uterine pregnany in left tube at third month. | Electro puncture, with Faradic current. | Arrest of pregnancy; recovery. | Bachetti,<br>1853. |
| Case II.—*Æt.* 35; had three children; always healthy. | Abdominal pregnancy; three months and a-half. | Faradisation; two applications; puncture. | Death from internal hæmorrhage. | Braxton Hicks,<br>1866. |
| Case III.—Pluripara; had attempted to procure abortion. | Abdominal pregnancy; fourth month. | Faradisation. | Arrest of pregnancy; recovery. | J. G. Allen,<br>1872. |
| Case IV.—Pluripara; last child one year before. | Left tubo-abdominal pregnancy; three months. | Faradisation. | Arrest of pregnancy; recovery. | Loving and Landis,<br>1877. |
| Case V.—*Æt.* 21; primipara. | Left tubo-interstitial pregnancy; two months three and a-half weeks. | Galvanism, with interruptions and reversions. | Delivery per vias naturales; recovery. | M'Burney,<br>1878. |
| Case VI.—*Æt.* 25; had one child five years before. | Abdominal pregnancy; three months. | Faradisation. | Arrest of pregnancy; recovery. | J. C. Reeve,<br>1879. |
| Case VII.—*Æt.* 34; had one abortion ten years before. | Right tubal pregnancy; three months. | Galvanism, with interruptions. | Arrest of pregnancy; recovery. | C. E. Billington,<br>1880. |
| Case VIII.—*Æt.* 28; twice married; had one abortion. | Tubal pregnancy; two months. | Faradisation. | Arrest of pregnancy; recovery. | W. T. Lusk,<br>1881. |
| Case IX.—*Æt.* 28; married for three years; primipara. | Abdominal pregnancy; three months and a-half. | Galvanism, with interruptions. | Arrest of pregnancy; recovery. | Bache Emmet,<br>1882. |
| Case X.—Same patient as Case IV. | Left tubal pregnancy; three months. | Faradisation. | Arrest of pregnancy; recovery. | H. G. Landis,<br>1882. |

The author then proceeds to compare electricity with the other operative procedures in vogue—namely, puncture, injection of morphia, elytrotomy, laparotomy, and dilatation of the natural passages, and finds it incomparably safer and more satisfactory. As regards the kind of electricity to be used, the Faradic is to be preferred, and the strength of the current must be regulated very much by the patient's feelings. The application should last for ten minutes, and should be repeated every day.

The author claims for this method efficacy and safety, and hopes thus greatly to diminish the high mortality (at least sixty per cent.) which has hitherto prevailed in this disease. He therefore makes the following statement:—"If the diagnosis of extra-uterine pregnancy can be made early with certainty, or if, in doubtful cases, the probability points in that direction, *the* treatment is electricity."

J. W. Ballantyne.

3. **Auvard on Artificial Incubation in Infants.**—In this pamphlet we have first a description of a form of incubation introduced recently into the maternity at Paris by Tarnier. It consists of a box with double walls, between which sawdust is packed to insulate it. The box is divided into two compartments, by a horizontal partition: in the lower of these is a metal case for hot water, round which on all sides is a space for circulation of air. The upper compartment of the box communicates with this space through holes in the horizontal partition, and is thus heated by the warm air rising from it. The child is placed in the upper compartment, which is covered with a glass lid. The reservoir is heated by a thermo-siphon: this consists of a vertical tube placed outside the box, and communicating at its upper and lower ends with the reservoir,—the column of water in it is heated by a lamp, and thus a circulation in the water of the reservoir is produced, by which all the water comes to be heated. During cold weather, the lamp requires to be lighted thrice daily for two hours at a time; in warm weather, twice daily is sufficient. The temperature is maintained about 30°C.

The infant is dressed in the usual way and placed in the incubator. It is taken out to be fed and changed. It is fed by a wet-nurse unless it is too premature to take the breast, in which case asses' milk is given.

In 20 months 151 children have been reared in this way, and of these 105 have been saved. The cases are grouped as follows:—(1.) *Prematurity and congenital weakness.*—Of 93 between 6 and 8½ months, 31 died and 62 lived; some of these were 6 and 7 months' infants, and weighed as little as 1400 grms. (2.) *Cyanosis and Œdema.*—Here the results are very good; 4 cases died out of 21, while under ordinary treatment 16 would have died. (3.) *Various other affections.*—Of 22 cases, 13 were saved and 9 died. Since this treatment has been introduced, the mortality for premature children (= weighing less than 2000 grms. at birth) has fallen from 65% to 36%.

Dr. Auvard gives also the results of observations in the temperature and pulse of new-born infants. He gives the pulse-rate as 120; his observations on the temperature confirm those of other investigators. The effect of placing the child in the incubator is to increase the rapidity both of the pulse and the respirations; it does not lessen the initial fall of temperature, but makes the subsequent rise take place more rapidly.

This method of treatment is compared with that recommended by Winckel, in which the child is placed in water of an equable and warm temperature.

This last is more effective in preventing loss of heat, but there is a risk from the exposure of parts not covered by the water.

A. H. F. Barbour.

4. **Sappey on a Fœtus which had remained Fifty Years in the Fallopian Tube.**—The author relates an extraordinary example of preservation of the fœtus. On post-mortem examination, a tumour was discovered in the right fallopian tube, of very hard consistence, and uneven shape. On section, a fœtus from seven to eight months old was found in the interior, apparently quite fresh, looking like a "healthy sleeping child." He considers its wonderful preservation due to the exclusion of air and all putrefactive influences. Dr. Beaugendre, who obtained the specimen, put it in alcohol, and afterwards dried it in air, in which condition M. Sappey saw it.

Jas. Carmichael.

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## REPORT ON DISEASES OF CHILDREN.

1. **Henoch, Prof. E.**—Ueber Chorea. (On Chorea.) *Berliner klinische Wochenschrift*, No. 52, 24th Dec. 1883.
2. **Blachez.**—La Chorée du Larynx. (Chorea of the Larynx.) *Gazette Hebdom*, 1883, No. 42.
3. **Ashby.**—On Sore Throat in Children. *Practitioner*, No. 186, vol. xxxi. No. VI.
4. **Wood, Horatio C.**—A Clinical Lecture on the Nervous Affections of Children. *New York Medical Journal*, 29th Dec. 1883.
5. **Dehio.**—On Acute Subchordal Swelling, and the Croupy Cough of Laryngitis. *Jahrbuch. für Kinderheilkunde*, xx. B. 3 H.

1. **Henoch on Chorea.**—He considers chorea very rare under six years. Referring to the tables of West, who has collected 1697 cases, with 67 under 4 years, and 158 from 4 to 6 years, he says this proportion of cases under 6 years is much larger than his experience warrants him in believing to be the rule in this disease.

Three different varieties of disease are alluded to under the term chorea:—

(1.) *Chorea Electrica.*—Described by the author twenty years ago. He notes a class of cases described by a French writer as "tic convulsif," and also by Trousseaux in his Clinique Medicale as "tic non douloureux," as probably of a similar nature. In illustration he relates the case of a boy twelve years old affected for seven years, who had been attacked at the sight of the corpse of a criminal who had been hanged. Another case treated in his Poliklinik in 1882, where a boy of eleven years was terrified by the shutting of a door; the following night spasms came on affecting all the muscles of the body, and noisy interrupted inspiration with irregular contraction of the diaphragm. The case was transferred to the care of his colleague, Dr. Remak, who applied galvanism, with the result of stopping the spasms, but expressed his opinion that the cure might not be permanent. Bergeron recommends emetics in this variety of the disease. A prominent symptom in these cases is "lightning spasm," which, however, may be met with occasionally associated with ordinary chorea.

(2.) *Symptomatic Chorea.*—Under this group are included those where well-marked choreic spasms are present depending upon central nervous lesions of the brain, generally of a tubercular nature. An illustrative case is mentioned in a child one year old suffering from tubercular meningitis. In it the spasms were well marked, and of a choreic character. The post-mortem examination showed the case to be one of general tuberculosis, with a tubercular mass the size of a hazel-nut in the optic thalamus. This has been noticed in other cases by Bouchut, and the symptoms described by him under the name of "paralysis agitans." Dr. Henoch cannot agree with him in this definition.

In many cases he believes the disease of the optic thalami may have existed previously, the spasmodic symptoms only becoming developed when meningitis was set up. He admits that tubercular disease of the optic thalami occurs not unfrequently without choreic spasms, and in this connection mentions the case of a girl aged four, in whom tubercle was found in the cerebellum and in both optic thalami without any choreic symptoms. Charcot has also related such cases.

(3.) *Hysterical Chorea* of French authors is next alluded to. Trousseaux describes many such cases in young females. Our author states he has not met with any examples in children, although he says ordinary hysterical symptoms are not uncommon in them. He, however, proceeds to relate a case of the kind, which he has apparently some doubt in relegating to this class, although the choreic symptoms appear sufficiently well marked. It occurred in a girl of eleven years who was frightened by falling downstairs. Spasms of the shoulder, leg, and facial muscles occurred; the hands were pronated and rotated inwards, one shoulder being violently drawn towards the head. Movements ceased during sleep. She had hemianæsthesia of the left side, except the face. The faradic current was applied without avail. The anæsthesia in a time disappeared, but the choreic movements continued more violently than before.

(4.) *Chorea Minor.*—The ordinary form occurring in children, its chief characteristics being—limited duration, curability, great tendency to relapse, absence of motor or sensory paralysis. If paralytic symptoms occur, they are never real, but depend on muscular weakness of one or other of the extremities. He concludes by discussing the question of the pathology of this form of the disease, and alludes to the fact of decapitated animals exhibiting choreic movements as evidence against the cerebral origin of the disease. He also doubts the correctness of the views of Legros and Onimus as to implication of the ganglionic cells of the posterior cornua of the spinal cord as connected with the motor ganglionic cells, which may, he thinks, be influenced through the brain indirectly.

The fact that chloral hydrate is known to stop choreic movements in animals would point, he admits, to the brain rather than the spinal cord being the seat of lesion. He discusses the embolic theory of the disease, and does not regard it with much favour. Allusion is made to the prominent fact of terror or fright as a frequent exciting cause. Reflex causes, in his opinion, seldom operate in children, although he considers chorea gravidarum must be classed in this category. Professor Demme of Berne, he mentions, notes the case of a child of thirteen months, with fissure of the anus causing much pain and irritation, in which hemichorea came on and disappeared again in from three to five hours after the fissure was cut. Anæmia, measles, and scarlatina often, he thinks, predispose to it.

2. **Blaches on Chorea of the Larynx.**—Chorea affecting the laryngeal muscles, he states, is very rare in children, although not uncommon in hysterical females. He, however, has observed two cases in his practice among children. The first occurred in a lymphatic child born of a rheumatic mother. It was affected with laryngitis and spasmodic cough which, after a few days, assumed a somewhat remarkable form. Five or six spasmodic coughs occurred of a barking character, and these repeatedly followed one another. No cough occurred during sleep. No other choreic movements were observed in the child. Belladonna and valerian were administered, and found to produce a certain effect, although not of a curative nature, the attacks becoming of shorter duration, and lasting about two hours. Chloral was afterwards tried, and it was found the attacks rapidly disappeared under its use.

The second child, a weak and anæmic one, suffered from slight bronchitis. The cough was of a spasmodic nature, and otherwise very peculiar, resembling the noise produced by a "toy sheep." The attacks of this nature repeated themselves nine or ten times within a few minutes, and recurred several times a-day. The sleep was sound and placid with no noise of the breathing. The child was nervous, excitable, and talkative, but showed no other signs of chorea. The affection disappeared in three weeks under the use of potassium bromide.

3. **Ashby on Sore Throat in Children.**—Dr. Ashby draws attention to the great importance of a careful examination of the throat in acute febrile affections in children, and the readiness with which sore throat may be altogether overlooked if this is not attended to. He distinguishes four principal varieties of sore throat:—1. Catarrhal tonsillitis; 2. Scarlatinal tonsillitis; 3. Pseudo-diphtheritic tonsillitis; 4. Diphtheria. The infectiousness and frequent epidemic prevalence of catarrhal tonsillitis is alluded to. The intimate relation existing between the tonsils and the cervical lymphatics is likewise noted, and the occurrence of buboes generally in the lymphatic glands just below the angle of the jaw. In regard to the scarlatinal sore throat, our author mentions the fact of the occurrence in this disease of several varieties of the throat affection, from simple catharrhal redness, to croupous or diphtheritic exudation with extension of the morbid process to the soft palate and nares. In these cases the affection of the lymphatic glands is much more marked. Attention is very properly drawn to the readiness with which simple croupous exudations may be, and frequently are, mistaken for diphtheritic, and the obvious necessity of carefully distinguishing between the two.

4. **Horatio C. Wood on the Nervous Affections of Children.**—An interesting case of monoplegia is given. A boy of nineteen months suffered from one to two weeks from high fever, jerking of the muscles, and delirium, after which it was found one arm was paralysed and the muscles afterwards became atrophied. He discusses the question whether in such a case the lesion is in the brain, the large cells of the anterior cornua of the spinal cord, or in the nerve-trunks. The history of the case might have indicated meningitis associated with some cortical lesion, but had this been the case probably the paralysis would have developed more rapidly, and the muscles

would not have undergone such well-marked atrophy. The trophic centres of the muscles being in the spinal cord and not in the brain, whenever you have monoplegia followed by rapid wasting, it is just to conclude, he thinks, that the lesion is of spinal origin. The idea of peripheral origin of the paralysis in this case, he concludes, must be given up, as there was no evidence of local injury of the nerve, or such symptoms as intense pains or local herpetic eruption. Peripheral nerve-lesion would give rise to atrophy of muscles due to cutting off the nervous influence between them and the trophic centre in the cord.

5. **Dehio on Acute Subchordal Swelling, and the Croupy Cough of Laryngitis.**—The author finds, from a large number of cases observed in Dr. Rauchfuss' clinic, that subchordal swelling is a more or less constant accompaniment of laryngeal affections in children. The clinical symptom which indicates its presence is "barking cough." When this condition existed alone, there was no other symptoms present; but when general laryngeal tumefaction from whatever cause was present, there were symptom of stenosis. He is of opinion that the "pseudo croup of children is in most cases an intense rapidly subsiding laryngitis subchordalis acuta." Spasm of the glottis he considers a very rare occurrence, and is of opinion that in all acute laryngeal affections (other than membranous) this subchordal swelling, when superadded to the general inflammatory condition of the organ, is the cause of stenosis. This affection is named by Morell Mackenzie "subglottic chronic laryngitis," and described by him as a distinct disease. He apparently does not recognise its constant occurrence as an accompaniment of other acute laryngeal affections.

JAS. CARMICHAEL.

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## *ORIGINAL ARTICLE.*

### THE UNAVOIDABLE DANGERS OF TRACHEOTOMY FOR CROUP AND DIPHTHERIA.

By ARNOLD HIRST WATKINS, M.D., M.R.C.S.

PAPER II.

MANY writers are accustomed to speak of the operation of tracheotomy in cases of croup and diphtheria as if under ordinarily favourable circumstances it was neither dangerous *per se* or in its results, and to assume that if it sometimes does no good at any rate it does no harm, and that where the patient succumbs to the disease the operation has in no way unfavourably influenced the case. In the present paper I shall endeavour to show grounds for believing that tracheotomy in many cases not only fails to save life, but absolutely assists in bringing about the fatal termination.

In a paper in Nos. 11 and 12 of this Journal, I have published a statistical inquiry as to the results of the operation, to which I would beg the reader for a moment to refer. In it will be found strikingly brought out the extremely high mortality after the performance of the operation on young children, and what I may almost call its fatality under somewhere about two years of age. The markedly higher mortality in early childhood has long been a subject of comment, and various opinions have been expressed as to its cause, which I shall only briefly refer to. Dr. Peter, quoted by Trousseau,* thought it was due to traumatic fever; but what he took to have been evidences of the incidence of traumatic fever I shall endeavour to show has another significance. Mr. William Squire, writing in Reynolds' "Practice of Medicine,"† says the unfavourable result of this operation among young children has seemed to be from the difficulty at this period of life of counteracting the asthenic tendency of the disease for which it has been chiefly practised." And further on: "Most of the statistics relating to tracheotomy are drawn from cases of diphtheria, so that analogical deduction from them is unsafe." Reference to the statistics already quoted will at once show that the higher death rate cannot be explained by the larger proportion of cases of diphtheria operated on in early childhood.

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* "Clinical Medicine," vol. ii., page 614.

† Vol. i., page 101.

At page 102 of the same work, Mr. Squire states: "That no tube with less than ¼-inch diameter is sufficient to carry on respiration; at a year old such a tube cannot be introduced into the trachea, and it would not be tolerated at two years old." Were this statement absolutely correct it would at once explain most of the fatal cases recorded under two years of age; but in two cases of Dr. Foulis, which recovered, or at any rate in which respiration was efficiently carried on for many weeks, the lumen of the tube used was only 3mm. or rather less than ⅛th of an inch in diameter, giving only about a quarter of the area stated by Mr. Squire as essential.

Many other opinions might be quoted, but want of space obliges me to proceed at once to give my own views as to the cause of the extremely heavy death-rate under about three or four years of age.

I believe it to be mainly due to the following causes—(1) The tendency to disease leading to obstruction lower down the respiratory tract, which is present in very many cases of croup and diphtheria before the operation, but which may be set up as a consequence of the operation, either directly by the injury inflicted on the windpipe and the irritation of the tracheotomy tube, or indirectly by the passing of blood during and immediately after the operation into the bronchial tubes, even if this be small in quantity, which it frequently is not; or, again, by the allowing of air to pass straight into the windpipe, while not in a proper state as to moisture and warmth to come into contact with the mucous membrane lining the respiratory tract, especially when this is in what may be described as a hyperæsthetic condition, for it will scarcely be maintained that any artificial process of preparing the air for respiration will be as effectual and uniform as the natural process. (2) The fact that this tendency to obstruction is rendered greatly more dangerous by the opening in the windpipe preventing effectual efforts to dislodge the mucus, &c., from the bronchial tubes. When I began this paper, I was unaware that this danger in connection with tracheotomy had ever been referred to, but I am bound to admit that in the course of my investigations on the subject I find Sir W. Jenner has already referred to it, though, I think, he has not exactly described the part played by the glottis in the act of coughing, at any rate as to the sequence of events. His words (as quoted in Flint's "Practice of Medicine," page 264) are as follows: "In an efficient act of coughing first a deep inspiration is taken and the glottis closes, *then, by means of forcible expiratory efforts, the current of expired air dislodging from the bronchial tubes their contents, carries them into the trachea, and the glottis suddenly opening, expectoration is effected.* Now, with a tube in the trachea an efficient act of coughing cannot take place, hence there is a greater liability to accumulation in the bronchial tubes in the cases in which bronchitis is associated with the laryngitis."

Now the sentence which I have put in italics in the above, I think distinctly implies that the contents of the bronchial tubes are dislodged and carried into the trachea while the glottis still remains closed, and *then* the glottis being opened they are carried *through the glottis* by the escape of the imprisoned air. But what really happens is this: after a deep inspiration has been taken and the glottis closed, forcible pressure is put by the muscles of expiration on the air contained in the thorax, which thus attains a tension greatly above the ordinary tension during expiration. No effect, however, is so far produced on the contents of the bronchial tubes, which remain stationary until the glottis is suddenly relaxed, when the imprisoned air rushing out with a high velocity carries with it the contents of the bronchial tubes, not usually the whole way at once if tough and viscid, but at any rate bringing them towards the glottis, through which by successive acts of coughing they are carried.

To illustrate the mechanism of coughing, I have made some experiments with an apparatus, which may be described as follows:—A straight glass tube, of any convenient size, is choked or narrowed in some part of its length, so that a body, such as a ball of pith, introduced into the tube at its upper end will lodge at the constructed point. The lower end of the tube is attached to a simple india-rubber bag, which can be easily compressed by the hand, and the upper end is closed by a cork, not pressed in too hard, so that it can be driven out by compressing the air in the bag; the whole thus forming a modification of an ordinary child's pop-gun. The cork in this apparatus forms a rough but convenient representation of the glottis.

Now if the pith ball be closely watched while the elastic bag is compressed with the hand, it will be seen that as long as the pressure is accumulating no movement whatever takes place, but the moment the pressure in the tube overcomes the resistance offered by the cork, the ball is carried out of the tube by the current of escaping air. If the cork has not been pushed in firmly enough, the ball may not be driven right out, but will in any case, be carried to a greater or less extent up the tube. It can be easily shown that the current of air from the elastic bag, however rapidly compressed by the hand before closing the tube with the cork, is insufficient to do more than raise the ball slightly from its position. It scarcely needs any comment on this experiment to call attention to the very unfavourable effect which will be produced on the power of the patient to raise the contents of the bronchial tubes, when by the operation of tracheotomy he has been deprived of the use of his glottis, and has consequently no power to get the air contained in the chest under any higher pressure than during forced expiration with the glottis open. If reference be again made for a moment to the experiments instituted, it will be seen at once what a vast difference there is between the power of a forced or even spasmodic expiration when there is no counter pressure put on the air, and a genuine cough to expel the contents of the bronchial tubes. However hard or suddenly the india-rubber bag is compressed, very little effect is produced on the loose body contained in the tube, while if counter pressure be made by the cork or artificial glottis, it is on expulsion of the cork at once raised some distance upwards, and if the cork is put in sufficiently firmly so as to represent the glottis during an act of violent coughing it is driven far out of the tube.

In the reference made by Sir W. Jenner to this danger from tracheotomy he limits it, by inference however, to certain cases as already quoted: "The danger from the effect of this operation thus relates to the bronchial tubes in the cases in which bronchitis is associated with the laryngitis."

I cannot but think that this association should be regarded as the rule rather than the exception; and even supposing that there are some cases in which at the time of operation there is no pre-existing bronchitis, I think bronchitis in a more or less severe form is almost sure to follow, as has been already pointed out.

But the danger is by no means limited even to cases of bronchitis, because it is scarcely possible to perform tracheotomy without, at any rate, some blood passing into the windpipe; and this blood not being expectorated (that is of course completely), and finding its way into the smaller bronchial tubes, may not only set up irritation around it, but may itself plug up the tubes, and cause to collapse the portions of lungs which they supply. And, further, in both croup and diphtheria there is a tendency for the false membrane to spread downwards into the trachea and bronchi, so that again a serious obstacle is opposed by the opening in the trachea to the separation by coughing of the false membrane if adherent, or its expulsion if separated, and in fragments in the bronchial tubes. This danger, of course, applies to older children as well as younger; but the much greater danger of bronchitis among younger children,—probably due to the ease with which their bronchial tubes are plugged up, they being so much smaller, and the chest walls and expiratory muscles weaker, and therefore less capable of an efficient act of coughing,—is so well known and universally recognised, that it is needless for me to dwell upon it, and it is evident that whatever interferes with the clearing out of the mucus or other contents of the air tubes will produce much more disastrous results in young children than in older children, or, *a fortiori*, than in adults.

The mortality from bronchitis at different ages up to ten years is well shown in the following table from Reynolds' "System of Medicine," taken from the Registrar-General's Reports for 1868:—

| Male. | | Female. | |
|---|---|---|---|
| Under 1 year, | 3849 | Under 1 year, | 2969 |
| 1 ,, | 1585 | 1 ,, | 1585 |
| 2 years, | 562 | 2 years, | 594 |
| 3 ,, | 289 | 3 ,, | 243 |
| 4 ,, | 139 | 4 ,, | 161 |
| 5 ,, | 207 | 5 ,, | 211 |
| 10 ,, | 40 | 10 ,, | 47 |

But to leave theory and experiment, and go back again to the region of actual experience, do the facts bear out my views?

To take first my own cases,* since it is largely from having been compelled by circumstances to sit by my patients continually, and consequently to watch from hour to hour the manner of their progress towards a fatal termination, that my views have been formed. Unfortunately it was not possible in either of these cases which occurred in private practice to get a post-mortem examination, except the partial one on case 5,—but the manner of death was pretty evident. Case 2 of course proves nothing in any way, and I shall therefore leave it out. Cases 1, 3, and 6 all terminated in much the same way: marked temporary improvement after the operation, the turgescence of the vessels of the neck and face subsiding, colour becoming natural, and consciousness where absent or impaired returning, so that in almost every case the parents' and friends' hopes were raised high by the apparent improvement, despite the warnings I never failed to impress. After a few hours the cough would get more difficult and less effectual, the respiration quicker, the pulse and temperature higher. With this was always marked restlessness and anxiety, often making one feel that the claim made for the operation, that at any rate by its performance we secure " euthanasia," would not have been so confidently made had our large operators been also their own nurses. The children would constantly seek relief to the breathing in some new position, generally were possessed by a raging thirst, and the expectoration became less and less. Gradually stupor would come on, the breathing get slower and shallower, the face assume a deathly pallor, the surface of the body and expired air become cold, and death at last terminate the scene. During the stage of excitement, before stupor comes on, the constant, severe, but ineffectual coughing is a very marked feature.

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* Published in detail in this Journal for 22nd December, 1883.

I refrain from giving any results of physical examination of the chest during this period, because I always found it most unsatisfactory owing to the many complicating sounds. There is, however, I think, no doubt whatever that these three children died of slow suffocation dependent on obstruction lower down the respiratory tubes, probably bronchitis or brocho-pneumonia, perhaps complicated with collapse of portions of the lungs; and I have little doubt that had Case 5 not been cut short in the manner described, it would have terminated like the others, as the symptons were following an almost identically similar course. It may be said that death in this case was the result of an accidental complication, but it seems to me that it might at any rate be largely attributed to the interference with the power of effectual coughing caused by the opening in the trachea.

Looking to the experience of others, the following tables will show the causes of death where given in cases referred to in the paper already published:—

TABLE SHOWING CAUSES OF DEATH IN DR. G. BUCHANAN'S CASES.

1. Died 6 weeks after the operation of convulsions.
2. Suddenly suffocated 3 hours after the operation.
3. Died before respiration was re-established.
4. "Became hot and restless, pulse rapid but small, face puffy and livid." Died 16 hours after operation.

7. Post-mortem showed exudation had extended to bronchi, but not sufficient to cause death if its strength had not been exhausted.
8. Died suddenly 9 hours after the operation.
11. Died about 18 hours after the operation from asthenia.
13. Was unable to cough up tough expectoration which collected in the trachea.
18. Improved for some time. Tube removed. Whilst running about the room next day said he felt choking, and died shortly after.
19. Died 7 days after the operation with signs of obstruction lower down, though he had improved for first 5 or 6 days.
24. Died 13 days after the operation from suspected effusion into smaller bronchial tubes.
27. Died on the fifth day from extension of inflammation.
37. Died on the eighth day from spreading of the disease downwards.

### TABLES SHOWING CAUSES OF DEATH IN CASES OPERATED ON BY JACOBI, KRACKOWIZER AND VOSS.*

| | |
|---|---|
| In Operation, | 1 |
| Apnœa from too late Operation, | 6 |
| Apnœa, | 3 |
| Apnœa and exhaustion, | 4 |
| Diphtheria, | 8 |
| Bronchitis, | 6 |
| Broncho-pneumonia, | 15 |
| Pneumonia, | 5 |
| Broncho-pneumonia and pulmonary gangrene, | 1 |
| Pulmonary œdema, | 1 |
| Pseudo-membranous bronchitis, | 18 |
| Tuberculosis, | 1 |
| Convulsions, | 2 |
| Emphysema, | 2 |
| | 73 |

### TABLE SHOWING CAUSES OF DEATH IN CASES OPERATED ON BY DR. J. H. RIPLEY.†

| | |
|---|---|
| Bronchial Croup, | 14 |
| Uræmia, | 3 |
| Toxæmia, | 2 |
| Cardiac Paralysis, | 2 |
| Accidental Plugging of Tube, | 2 |
| Uræmia and Respiratory Paralysis, | 1 |
| Pneumonia, | 1 |
| Erysipelas and Bronchial Croup, | 1 |
| Acute Tuberculosis, | 1 |
| | 27 |

### TABLE SHOWING POST-MORTEM APPEARANCES IN CASES TAKEN FROM ST. GEORGE'S HOSPITAL REPORTS, 1877-79.

CASE NO.

1. Trachea congested, muco-pus in trachea and bronchi.
4. False membrane lining trachea and bronchi almost to finest ramifications.
5. False membrane to secondary bronchi; pus in the bronchioles . . . catarrhal pneumonia of the bases.
6. Lungs showed congestion and atalectasis.
7. Congestion of larynx, trachea, and bronchi, with patches of emphysema, and of collapse in the lung.

I have not attempted to classify them, though I have given Dr. Ripley's cases and those of Jacobi, Krackowizer and Voss, in the form in which they have tabulated them, though neither classification is very satisfactory or according to the principles of logical division. If anyone, however, will read carefully through these cases, it will be at once seen that with comparatively few exceptions death was due either to disease or obstruction lower down the bronchial tubes, the cause of death being, in almost every case, of such a nature as to be at any rate rendered much more fatal if not absolutely induced by any condition which would interfere with the efficient expulsion of the contents of the bronchial tubes. I have then, I venture to think, conclusively shown that the operation of tracheotomy in these cases is by no means harmless, but is capable of adding very seriously to the danger of any given case; as, to repeat what I have already said, it interferes with the power of effectual coughing, since there being after the operation virtually no glottis, the air contained in the bronchial tubes can never be got under such a pressure as when the function of the glottis is intact; nor does it seem for a moment probable that any ingenious mechanism could be invented to obviate this mischief, as it is essential that the relaxation of the glottis should be under the control of the nervous system, so as to work harmoniously with the efforts of the expiratory muscles.

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* *American Journal of Obstetrics*, May, 1868.

† *New York Medical Record*, 3rd July, 1880.

If this be granted, it will still remain for the physician in any given case to decide if the danger of immediate suffocation is so great as to make it worth while to relieve it by an operation not "free from danger *per se* or in its results,"* nor whose "dangers have all along been greatly exaggerated,"† but one capable of adding enormously to the danger of the case, at any rate in another direction. Looking to the few recoveries amongst very young children, and the fact that some even apparently *in extremis* do recover without operative interference, it would certainly appear that in their case at any rate it would be better on the whole to trust to nature and such remedies as may be available, than to operate, however desperate the case may appear. In older children, the added danger being less in proportion as bronchitis becomes less fatal with every additional year of life, I would not absolutely negative any operative interference, though I do not think it would be advisable to submit them to the dangers added by tracheotomy except in a comparatively small number of cases, and certainly I would not think of operating "before alarming symptoms had come on,"‡ despite the many high authorities who would not only sanction but urge such a proceeding.

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* G. Buchanan, "Transactions of the International Medical Congress," vol. iii. page 207.

† R. W. Parker, *British Medical Journal*, 1879, vol. ii. page 286.

‡ Mr. John Glaister, *British Medical Journal*, vol. ii. page 286.

# *MEETING OF SOCIETY.*

## THE MEDICO-CHIRURGICAL SOCIETY.

THE Third Meeting in the current session of the Medico-Chirurgical Society was held on the evening of Wednesday, 16th instant, under the chairmanship of Dr. Jamieson, and was marked by some features of special interest.

Two patients were exhibited by Dr. Argyll Robertson, illustrating the excellent results obtained from a new operation for Ectropion, recently devised by him, as well as the principle and method of the operation itself. The affection dealt with was, Dr. Robertson said, that variety of ectropion which depended upon a long-continued, neglected inflammation of the conjunctiva of the lower lid. The principle which underlay the operation was to impart to the tarsal cartilage its normal inward curvature. All methods of treatment which did not do this would signally fail in effecting a radical cure. The method of the operation was essentially simple. The apparatus used consisted of—(1) a piece of waxed silk ligature, about a foot long, to each extremity of which was attached a moderately long and slightly-curved needle; (2) a piece of sheet-lead, fully an inch long and a quarter of an inch broad, with rounded extremities and smooth edges, and having a curvature somewhat corresponding to that of the globe of the eye readily imparted to it by the finger; and (3) a piece of narrow india-rubber tubing, resembling a thin india-rubber drainage-tube without the perforated holes. In performing the operation, one of the needles was introduced through the whole thickness of the lower lid at about a quarter of an inch outside the centre line, and brought out at a point about a line from the margin of the lid, close to the point from which the eyelids emerge. The other needle, in like manner, was made to perforate the lid about a quarter of an inch from the inner side. Both needles were then passed with the ligature over the piece of lead, which was introduced along the inner surface of the lid, and were next drawn through the fold of conjunctiva which passes from the lid on to the globe, and caused to pass for a short distance under the skin and brought out about an inch from the margin of the lid. The needles having been withdrawn, the piece of india-rubber tube was passed under the fold of ligature between the original points of puncture, and the ends of the ligature were drawn upon and tied over the tube further down. This apparatus was permitted to remain *in situ* for a period varying from five to seven days. In the meantime, considerable œdema and swelling of the lid occurred, but with no great pain and only a slight amount of suppuration in the tracks of the ligature. Immediately after the removal of the apparatus, a slight relapse occurred, but under the use of astringents the eyelid was restored to its natural position. As far as his experience went, though so far he had operated only on six cases, the result had been eminently satisfactory in bringing to a very good conclusion a class of cases which, in practice, had been found very difficult to treat. Part of the good result was due, in his opinion, to the suppuration taking place in the tracks of the ligature and the consequent cicatrisation which it brought about. In the first patient, the apparatus, which had been put on upon the previous Monday, was still *in situ*. They would see that the india-rubber tube prevented the cutting of the skin by the ligature and permitted a certain amount of œdema without excessive pressure on the lid—the tube yielding to a certain extent to the pressure. The object of the piece of lead was two-fold—(1) to impart to the whole inner surface of the lid the right curvature; and (2) to prevent the ligature cutting or injuring the inner surface of the conjunctiva. The second patient had been treated for ectropion, the result of chronic conjunctivitis of seven years' standing, and he thought the Society would agree that the result was eminently satisfactory; that, in fact, it showed a perfect cure, though the edge of the lid was still a little injected from slight remaining conjunctival inflammation. In the other cases, the result was about as satisfactory. In one of these he showed photographs of the patient, taken before and after the operation.

Pathological specimens were exhibited by Mr. A. G. Miller and Dr. M'Gillivray. Mr. Miller's specimens were—(1) portions of the spinal column, from a case of fracture of the cervical vertebræ; and (2) bones of the arm, from a case of amputation at the shoulder-joint for compound fracture of the humerus. The first specimen was, he said, from a patient admitted into his ward early in the morning of 8th December, very drunk, and suffering from a very severe lacerated scalp-wound. In the course of a few hours there was paralysis and anæsthesia, as high up as the umbilicus; and, by eleven o'clock at night, this had reached as high as the third rib, with, however, sensitiveness of the penis till the latter stage. The case went on from bad to worse, and the man died six days after admission. To the very last, almost, he knew when his bladder was full, and asked to be relieved by the catheter; and he knew also when fæces were in the rectum, though he had lost control over the sphincter. At the post-mortem no crepitus or any preternatural mobility could be made out in the neck before any incision was made, yet there was afterwards found fracture of the laminæ of the sixth cervical vertebra, with separation of the spinous process, and a very well-marked fracture of the body. There was also extravasation into the muscles of the neck posteriorly. In the other case, osteomyelitis occurred after a compound fracture, which had been received in the country six days before admission, from the passage of a waggon over the arm. He had amputated at the shoulder, and not sawn through the bone—(1) because from previous injury of the same arm in the patient's childhood there was nothing but cicatrix up to the surgical neck of the humerus; and (2) because of the osteo myelitis. The man had done remarkably well since the operation, which was that of Professor Syme, and had been performed ten days ago. The first dressing was twelve hours after the operation, and an erythema, which had extended up the arm and partly down the side, had then disappeared. Dr. M'Gillivray, on behalf of Dr. Heron Watson, exhibited an interesting specimen of enchondroma, in an arm which Dr. Watson had recently removed from a gentleman of between forty-five and fifty years of age, in whom Professor Syme had about twenty years previously excised the middle finger on the same side for the like affection. The other fingers were similarly affected; but the gentleman went out to India, and was able, notwithstanding, to write and play lawn-tennis, and generally to use the hand freely. About eighteen months ago, however, he noticed new growths about the elbow and in the upper part of the arm. This last increased to such a size, with consequent nerve-pressure, pain, and sleeplessness, that he came home; and Dr. Watson had, three weeks ago, removed, along with the growth, the whole arm, the scapula and half of the clavicle. The operation was performed, and the wound dressed antiseptically, and fifty or seventy vessels had to be tied; but the man was now perfectly well. Dr. Watson had also sent the remaining half of a lower jaw, which he had recently removed on account of cystic tumour, the first half having been removed by him about twenty-four years ago for the same cause. The tumour had recurred about eight or nine months ago. The patient was now perfectly well. Dr. M'Gillivray further exhibited, as a curiosity, three or four little masses, about the size of a horse-bean, and looking as if covered over with a serous membrane, which he had found in the pleural cavity at a recent post-mortem in a case of pelvic abscess. Nothing of an abnormal character, except this abscess and these masses, was found. He had no idea of their nature.

Mr. MacDonald Brown exhibited a clamp for Enterectomy, designed by Mr. Bishop of Manchester, and which, he said, was a modification of Treves' clamp for the same operation. For the new clamp, which was exhibited at the British Association meeting in August last, he claimed several advantages in the way of easy application, of effectual control over the contents of the bowel, and of no unnecessary meddling with the mesentery. Its only disadvantage in its present form was its weight, but Mr. Bishop maintained that it should be made of aluminium.

Dr. Byrom Bramwell, in completion of the exhibition of microscopical sections and drawings which he submitted at the previous meeting, now exhibited sections and drawings of—(1) obliterated central canal of the spinal cord; (2) tubercular inflammation of, and (3) hœmorrhage into the spinal membranes. With regard to the first of these, which he said he showed simply because the condition was so common, he believed that in a large proportion of cords in persons presumably healthy—in adults, at all events—the same condition was to be seen. The next sections were from a case, in which death occurred from tubercular inflammation of the scalp meninges, and the spinal membranes appeared, as far as the naked eye appearances went, to be healthy; but in which, on microscopic examination, there was found the condition shown in the sections and diagrams—viz., inflammatory exudation on the outer cortical part of the cord, particularly in the neuroglia of the tissue surrounding the cord, and extravasation of blood between the dura mater and the other membranes —a somewhat rare condition.

Great part of the evening was occupied by Dr. Sims Woodhead in a very able and interesting demonstration, which the profession will doubtless be glad to see in a more permanent shape, of some of the methods of cultivating micro-organisms. The readiest and best methods of sterilising apparatus and media for the cultivation processes, as well as these themselves, were fully and clearly described; and the whole demonstration was made, with the aid of Dr. Hare, as complete and as practical as it could well be made by means of specimens, preparations, and diagrams.

Dr. MacBride stated the gist of an original communication which he made to the Society, "On a Rare Form of Laryngeal Neurosis,"—the laryngeal vertigo of Charcot. Dr. MacBride contended that neither this name nor that of laryngeal epilepsy truly described the etiology of the condition. That of laryngeal spasm of adults, if the word complete were prefixed to it, gave, he submitted, a correct explanation of the disease. Owing to the lateness of the hour, the reading of Dr. Craig's original communication on a case of malformation in a male child was again deferred.

F. A. MACIVER.

# *REVIEW.*

**The Story of the University of Edinburgh during its First Three Hundred Years.** By Sir ALEXANDER GRANT, Bart., &c. In two vols. 8vo. With Illustrations. London: Longmans, Green & Co., 1884.

### THIRD NOTICE.

THE serious question of the granting of new degrees in medicine and surgery, which is, in the volumes before us, treated so lightly, was argued before a Committee of the Privy Council—consisting of Lord Chancellor Bethell, ex-Lord Chancellor Cranworth, the Duke of Richmond, the Earl of St. Germains, Sir George Cornwall Lewis, M.P., and Robert Lowe, Esq., M.P. (now Lord Sherbrook). Before them appeared for the Scottish Royal Colleges, Roundell Palmer, Esq., Q.C. (now Lord Chancellor Selborne), and Mr. Dove Wilson, of the Scottish Bar, to the antiquarian researches of whose father, Dr. Charles Wilson, the case of the Colleges was much indebted; for the Colleges of Surgeons of England and Ireland, Sir Hugh Cairns (now Lord Cairns) and E. J. Bevis, Esq.; while for the Senatus Academicus were Rolt and Selwyn, both then wearing silk, and who rose, the one to be Solicitor-General, the other a puisne judge.

In the index to Sir A. Grant's work, we find "University, meaning of the term, i. 29," and on turning to the place indicated, we find quoted part of the bull of Pope Alexander the Sixth constituting the University of Old Aberdeen, in the words:—

> "Statuimus et ordinamus quod in dictâ civitate de cætero sit, et perpetuis futuris temperibus vigeat studium generale et Universitas existat studii generalis."

On this quotation Sir Alexander remarks:—

> "Among other points the import of the word 'universitas' comes clearly out, and we learn how erroneous is the modern and very common idea that under the term university is implied *universitas studiorum*, or an institution embracing instruction in the entire round of the sciences."—Vol. i. 29.

But the promise of the index is not fulfilled, in this place at all events, for the author rests content with telling us what in his opinion a university is not, but does not grapple with the question which has excited so much controversy as to what a university is. Even his negative opinion, however, we are disposed to controvert. *Studium generale, et universitas studii generalis* may after all be, and most probably are, convertible terms — examples of that redundancy of phrase and reduplication of synonymous words in which lawyers and law-documents have ever delighted.

A very general idea prevails that the distinction between a college and a university is that the former is a teaching, the latter a degree-conferring body; and in the volumes before us, though not absolutely asserted, it is more than hinted at, that

> "The College of Edinburgh, . . . strictly a college to begin with, . . . as time went on showed itself equal in its teaching to the old established universities of Scotland. Professors of various subjects were added to its staff, and the domestic side of the institution dwindled away as students gradually ceased to reside within its walls. It could never become a university in the mediæval sense, because it lacked

a charter as such, and all the forms of a mediæval university. But it did grow into a university in one of the modern senses of the term—that is to say, an institution for specialised teaching in many subjects and for conferring degrees in four Faculties."—Vol. i. pp. 183, 184.

We venture to think there is a good deal of confusion of idea and ambiguity in this. What is dignified by the euphuism, of "one of the modern senses of the term" university, would be more correctly described as a popular and vulgar notion of the present day. University is comparatively a modern word, displacing and being originally synonymous with *studium*, and subsequently, as Sir William Hamilton has shown, being, "in the common language of Rome, equally applicable to *persons* and to *things*." His definition of a university is as follows:—

> "Without research, dipping only into the academical documents nearest at hand, we shall find no difficulty in proving that *university*, in its proper and original meaning, denotes simply the whole members of a body (generally an incorporated body) *of persons teaching and learning one or more departments of knowledge*, and not an institution privileged to teach a determinate circle of the sciences, and to grant certificates of proficiency (degrees) in any fixed and certain departments of that circle (faculties)."—"Discussions," p. 479.

The idea insinuated rather than asserted in the passage quoted from "The Story," that a university *qua* a university has power to grant degrees, cannot be too soon dispelled. It was thus well put by Lord Cairns in the pleadings before the Privy Council, in defining "the precise nature of a degree":—

> "No doubt, in considering the Crown as the fountain of honour, we are accustomed generally to look at those much larger and much more conspicuous honours which flow directly from the Crown; but although literary degrees are an inferior kind of honour, they certainly, beyond all doubt, are degrees of honour of which the Crown is the source and fountain. It does not require to be adverted to that the Crown, of course, could not in practice confer literary degrees in the same way that the degrees of honour are conferred—that is to say, honours flowing immediately from the Crown.
>
> "The Crown could not have materials by which it could conduct the investigation which must always precede the granting of a grade of literary merit, . . . and, therefore, is obliged to delegate to other persons the granting of this kind of honour. . . . Therefore, the habit of the Crown has been to delegate to certain learned bodies in the kingdom—which it generally makes corporations for the purpose—this power."—"Report of Proceedings, &c.," p. 75.

He then, by overwhelming evidence, combats the doctrine, "maintained by the Senatus," and now in the book before us—

> "That every university, . . . by virtue of its incorporation, without looking to the terms of the delegation to it—the terms on which the right of creating honours is given to it—has got the power of granting degrees in such a way and in such branches of science as it thinks fit."—"Report of Proceedings, &c.," p. 7.

Such a doctrine was indeed maintained in the argument before the House of Lords by Mr. Yorke and Sir Charles Wetherell, in the case of the London University regarding degrees in divinity; but it found no acceptance, and is incapable of proof. The University of Edinburgh has no power to grant degrees by its charter; that power was conferred on it by the subsequent Act of Parliament, which, of course, received the royal assent.

"The words," says Lord Selborne, "which give the actual privileges to the University are the words which are contained in the Act of Parliament which followed upon that" (the charter)—that is, the Act of Parliament of 1621.—"Report," p. 10.

We have thought it of importance to draw attention to these fundamental principles in consequence of the numerous popular errors on the subject, and also in view of probable fresh legislation,—for were Sir Alexander Grant to be accepted as a safe guide in these matters, mistakes might readily be made.

What remains under this head may be more rapidly exhausted. It was contended against the ordinances of the University Commissioners:—

*First*, — That the Commissioners had exceeded their powers, and had introduced a new degree.

*Second*,—That even if it could be shown that the new degree was legal, it was not expedient. Subsidiary to these—

*Third*,—That the examinations prescribed for it in the ordinance were insufficient.

*Fourth*,—That the Board of Examiners appointed to test the candidates was objectionable because composed mainly of University teachers.

*Fifth*,—That while nominally extra-academical classes were admitted to qualify for the degree, practically they would be to a great extent excluded by the nature of the regulations. Summarily, the latter objections may be condensed in the words of Lord Selborne ("Report of Proceedings, &c.," p. 57).

> "The Commissioners have lost sight of the proper function of the University, and have regarded the University as entitled to assume the position of a body interested in competing with the Colleges of Surgeons and Physicians in attracting candidates for the mere purpose of practice. This seems to be foreign to the purpose of both Acts of Parliament, and in its result to have a tendency to injure and destroy that very value that existed before of the academical medical degree; and, at the same time, to operate injuriously and to the general disadvantage of the country and the profession upon those who have the other qualifications given by the Medical Colleges, and have not the academical degree."

Mr. Rolt, Q.C., the counsel for the Senatus, met this by openly alleging—

> "If that is to be so, it is obvious that the school will be cut down at once. If the Edinburgh degree of Doctor of Medicine had not qualified, or at least had not enabled the possessor of the degree, out of exclusive bounds, to act as a general practitioner, that school would never have arrived at the eminence at which it now is."—"Report of Proceedings, &c.," p. 189.

Here, then, we have the Medical Faculty instructing their counsel so to plead, and against their contention, in addition to quotations already made, we would add one from the Faculty of Arts in the University itself, published by the Commissioners of 1830 in their evidence:—

> "No higher qualifications are expected from the physician (who practises on an academical degree) than from the surgeon (who does not). Hence it has happened that the physician has sunk in the scale of general estimation, while the surgeon has risen to his level."—Quoted by Sir William Hamilton.—"Op. Cit.," p. 631.

The decision of the Privy Council was in favour of recommending Her Majesty to confirm the ordinances—a result which surprised none who were present at the discussion, and saw the attitude assumed by Lord Chancellor Bethell from the first, and remembered that he had been the unsuccessful counsel for the Senatus in their law-suit with the Town Council some years before. We cannot, however, understand any unprejudiced friend of the University rising from a perusal of the arguments without regretting that it was so decided.

The whole records of the growth of the University, as narrated in the volumes before us, afford ample evidence of the unfitness of a body like the Senatus Academicus to have the uncontrolled management of the affairs of the University. No new professorship was ever created, no attempt to elevate the character of the University by extended or more stringent examinations was ever made, but it was certainly opposed by the professors, who thus displayed an anxiety, to quote the forcible if not elegant language of their counsel, Mr. Rolt, "to bring grist to their mill." Unfortunately, however, it was not one collective, but a number of individual mills, the interests of which had to be considered.

Sir Alexander narrates in a way which looks like approval the success of the late Professor of Clinical Surgery in getting the chair of Military Surgery removed from Edinburgh. Had this lessened the burden of classes imposed upon the student, there might have been cause for satisfaction in its abolition, but the number of courses of surgery required by the statutes remained the same; all that was effected was that the choice of the student as to surgical teaching was limited to two instead of three, and of those two the professor who secured the abolition of that chair was one. And yet this was a popular class, and always attracted the attendance of naval and military surgeons resident in Edinburgh, a class the value of which was attested by the late Sir James Macgregor when Director-general of the Army Medical Department; and which was also cordially approved, on the evidence they had collected, by the Commissioners of 1830.

And so with regard to other necessary improvements.

Why was the preliminary examination in general literature tested by medical instead of literary professors?

Why, indeed, are boys in a low state of pupilage allowed to enter the literary classes, thus degrading the teaching and causing it to lose its proper character, that it may adapt itself to the necessities of boys who should still be preparing for college at a gymnasium?

Why, notwithstanding its condemnation in the admirable Report of 1830, and the strong opinion of every competent unbiassed judge, are teachers still allowed to examine their own students for degrees?

Why, with the great and most satisfactory increase in the attendance on the classes, is the tutorial element not increased in like proportion so as to secure adequate instruction to each member of the class?

Eventually there is no doubt that these glaring errors in the present system will be remedied, though probably not by those a little of "whose grist" such improvements may divert from "the mill."

There is much to tempt us in what remains of these volumes, but we have already too much exceeded our limits.

Unfortunately their author (we believe) was never an alumnus of the University, and during most of the stirring events of her history recorded in the later portion of his book was doing good service in India; we cannot, therefore, be surprised if many of his personal sketches of past professors lack the vivid interest that would have been imparted to them by one who knew the men personally. Of those whom he did know, we question if his estimate is always correct. No terms of eulogy seem strong enough to express his admiration of Sir Robert Christison, and in much that is said of him we cordially concur. No one can doubt the force of his character, his excellence as a professor and as a man, or his burning zeal for the University which he so long adorned. We suspect, however, that when his work comes to be examined by those removed from the sphere of his personal influence, doubts will occur whether his zeal for the University was always according to knowledge, and whether the reactionary policy which he usually advocated did not often retard instead of promoting her interests. Still, he was a great man, and will always be enshrined among those whom our Alma Mater will delight to honour.

"Cum magnis virtutibus affers grande supercilium."

There are others who we think receive but scant justice; but this discussion, if entered on, would prove interminable. With a few exceptions, we must congratulate Sir Alexander on the kindly and genial spirit which pervades his book. Many of the illustrations are admirable. Nothing could be better than the likenesses of Syme and Christison. Chalmers' is poor: we hope in a second edition it may give place to a copy of the admirable picture by Duncan, which as a spirited likeness could not be excelled.

Had we not limited ourselves almost entirely to the medical part of the book, we might have had much to say, among other topics, of improvements which we think might be effected in her governing bodies; and to those who, like the author of this review, attended a full Arts as well as Medical curriculum, anecdotes of the professors and their teaching will occur which have found no place in these volumes, and which should not, willingly, be let die; but our space is exhausted.

As loving sons of our Alma Mater, while pointing out a few spots which still disfigure her comely old age, we rejoice in the prosperity which has of late been showered upon her. Never had she a better professorial staff; never a more numerous band of creditable students. During the last twenty years, scholarships requiring a capital sum considerably over £142,000, and bursaries requiring £90,000, have been provided; while £23,901 have been subscribed for the erection of the New Medical School, not to speak of the enormous sum expended on its important adjunct, the New Infirmary.

May she go on and prosper, and, not resting on past fame, great as that is, adopt every improvement which will keep her in the van of intellectual and professional progress; may her genial Principal long be spared to preside over her destinies, and to issue new and improved editions of that book which shows at least how lovingly he has studied her history, and how completely he has identified himself with her interests. "Floreat res Medica!"

ALEX. WOOD.

ERRATUM IN LAST NUMBER.—Omit the "or," last word on page 331, and "universities," first word on page 332.

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# REPORT ON PATHOLOGY.

1. **Germain Sée.**—DU DIAGNOSTIC DES PHTHISIS PULMONAIRES DOUTEUSES PAR LA PRÉSENCE DES BACILLES DANS LES CRACHATS. (The Diagnosis of doubtful Pulmonary Phthisis by the presence of Bacilli in the Sputum.) *Bulletin de l'Académie de Médicine, No.* 49, *Séance du* 4 *Décembre*, 1883.
2. **Wolff**—ZUR PATHOLOGIE DER VERDAUUNG. (On the Pathology of Digestion.) *Zeitschrift f. kl. Med.*, vol. vi. (1883), p. 113.

3. **Gram, Christian.**—Untersuchungen über die Grösse der rothen Blutkörperchen im Normalzustande und bei verschiedenen Krankheiten. (Researches on the Size of the Red-Blood Corpuscles in the Normal Condition and in various Diseases.) *Fortschritte der Medicin*, 15th January, 1884.
4. **Eichorst, Herman.**—Poliomyelitis Anterior Acuta. *Speciellen Pathologie und Therapie*, 27 and 28 Heft, Band ii. p. 522.
5. **Eichorst, Herman.** — The Cortical Centres of Speech. *Speciellen Pathologie und Therapie*, 29 and 30 Heft, Band ii. p. 647.
6. **Heubner.**—Ueber cerebrale Kinderlähmung. (On Cerebral Infantile Paralysis.) *Fort. cl. Med.*, vol. i. p. 304.
7. **Ewald and Kobert.**—Ist die Lunge Luftdicht? Ueber das Verhalten des Säugethierherzens wenn Luft in dasselbe geblasen wird. (Is the Lung Air-tight? On the Behaviour of the Mammalian Heart when Air is blown into it.) *Pflüger's Archiv.*, vol. xxxi. p. 160.
8. **Coats, J.**—Infarctions of the Liver. *Glasgow Medical Journal*, January, 1884, p. 60.
9. **Israel, Oscar.**—Ueber die Cultivirbarkeit des Actinomyces. (On the Possibility of Cultivating Actinomyces). *Virchow's Archiv.*, i. 95.

1. **Germain Sée on the Diagnosis of Phthisis by the presence of Bacilli in the Sputum.**—In the first portion of the article the author discusses the general question of the experimental pathology of phthisis, and details the results of the various observations on the occurrence of the tubercule bacillus which have been published since their discovery by Koch. He then passes to the special subject of his inquiry—viz., the diagnostic value of the bacilli in doubtful cases. He believes that among the pathological products which point to the presence of phthisis, the first place must be given to presence of bacilli in the sputum, which must and ought at the present day to be looked upon as an infallible and pathognomonic sign of phthisis. Whenever, after one or more examinations of the sputum, the presence of bacilli is detected, we may conclude that we have to do with a case of phthisis; and he also believes, conversely, that when, after very careful and rigorous examinations, no bacilli are to be found, the non-existence of phthisis may be affirmed. By this method it is possible to make a diagnosis of phthisis, when the case is otherwise doubtful, in three varieties of cases—viz. (1) in latent phthisis; (2) in masked phthisis; and (3) in pseudo-phthisis. M. Germain Sée gives clinical observations of these three varieties in which the diagnosis was established by means of the microscopic examination of the sputum.

(1.) *Latent Phthisis.*—Of the various forms of latent phthisis, the first considered is that of dry catarrh. The patient has no symptom save a slight cough, with occasionally a little expectoration, and sometimes some feverishness. There is no alteration in connection with the percussion or auscultation of the chest. Another form is hæmoptoic phthisis—that, namely, in which the first abnormal symptom is hæmoptysis. A third form is that of acute tuberculosis, where the fever so closely approaches to that of typhoid fever that it is often very difficult to form a correct diagnosis. In all such cases, if any expectoration can be obtained for examination, a diagnosis may at once be made.

(2.) *Mastoid Phthisis.*—Under this heading M. Germain Sée classes all those cases of phthisis which take the form of another affection, commencing as pneumonia, bronchitis, laryngitis, or pleurisy. In all such cases the examination of the sputa for the tubercule bacillus is of great value.

(3.) *Pseudo Phthisis.*—This third class includes cases of broncho-pulmonary affections which add their signs and symptoms to those of phthisis, and leave the physician in great doubt as to the real nature of the case before him. Thus a syphilitic affection of the lung may closely simulate tubercular phthisis, from which it differs much as regards curability. M. Germain Sée has been able, by the examination of the sputum, to make the diagnosis between dilated bronchi and pulmonary cavities when the other signs closely resembled those of pulmonary cavities. There are, besides, simple bronchial catarrhs, with or without consolidation, which closely resemble phthisis, and the same may be said of asthma. In all these cases the examination of the expectoration will solve the difficulty. Occasionally, also, the routine examination of the sputum may lead to an unexpected diagnosis of phthisis, as, for example, in diabetics affected with chronic bronchial catarrh.

2. **Wolff on the Pathology of Digestion.**—In order to ascertain the rapidity of digestion in different individuals and under various conditions, Wolff experimented as follows:—Two decigrammes of iodide of potash were enclosed in a gelatine capsule, of such a thickness that the capsule was dissolved in 1-2 minutes when placed in lukewarm warm. After such a capsule was swallowed, the saliva of the patient was treated from time to time with starch until the presence of iodine was detected. The interval of time between the act of swallowing and the detection of iodine represents the rapidity of absorption *plus* the rapidity of separation through the salivary gland. In his observations on normal digestion, Wolff found that the interval between swallowing and the detection of iodine in the sputum varied from fifteen to thirty-four minutes. The condition of the stomach as to emptiness or fulness does not seem to affect the period of absorption. This normal period he found in cases of typhus, pneumonia, phthisis, gastric catarrh—acute and chronic, and in the dyspepsia of profound anæmia, as well as in healthy persons. Prolongation of the period of absorption was found to occur to a remarkable extent (three or four hours) in cases of carcinoma of the stomach, and should it be found, as these observations appear to show, that this retarded absorption is only met with in cases of carcinoma, it is possible that this method may, in doubtful cases, prove of diagnostic value.

J. GRAHAM BROWN.

3. **Christian Gram on the Size of the Red Blood-Corpuscles.**—In an exceedingly interesting article, Dr. Gram gives a most elaborate account of a series of researches carried on by him on the size of the red blood-corpuscles in health and in certain diseased conditions, more especially those which give rise to anæmia.

For counting the corpuscles he recommends the Thoma-zeiss apparatus (described in Virchow's *Archiv.* Bd. 84, i. and ii., 1881), and as the diluting fluid (1·200) he prefers Hayem's solution—

| | |
|---|---|
| Corrosive Sublimate, . . . . . . | 0·5. |
| Sulphate of Soda, . . . . . . | 5·0. |
| Chloride of Sodium, . . . . . . | 2·0. |
| Distilled Water, . . . . . . | 200·0. |

—as he considers that this alters the blood-corpuscles less than any of the other diluting fluids.

In making his measurements, he frequently met with microcytes, but these he came to consider as due to post-mortem changes or to methods of treatment.

When the blood is perfectly fresh the microcytes are absent, as also when the blood is at once transferred to Hayem's fluid. The sooner the blood is examined after removal from the body the fewer are the microcytes. They are more numerous in cases of anæmia, or when the blood is mixed with common salt, sulphate of soda, urine, &c.

Of the ordinary red blood-corpuscles he gives the classification adopted by Hayem, and divides them into "small," "medium-sized," and "large," though he differs somewhat from Hayem as to the measurement of these—small under 7m., medium-sized between 7m. and 8m., and large over 8m.

As a result of his researches, he concludes that the average diameter of the healthy red blood-corpuscle differs but little in men and women; extremes 8·0m. and 7·7m., with a mean of 7·84m. The size of single cells varies between 9·3m. and 6·7m., the former of which occurs least frequently, and not in all healthy blood, whilst the size which is most frequently met with is 7·9m. The proportional numbers of the large and small corpuscles vary very greatly indeed, the former running from 23 down to 4, and the latter from 12 down to 1 per cent., and the medium-sized corpuscles varying from 90 to 73 per cent. The average thickness of the corpuscle is from 1·7 to 1·8m.

*In Disease.*—In chronic anæmia he meets with a certain number of dwarf red blood-corpuscles, which vary from 6m. to 2·2m., though usually they are not less than 3·3m.; and also with giant red blood-corpuscles, which are from 10m. to 12m., and even 14m. in diameter—the latter very rarely. Where either of these forms is present in considerable numbers, the average diameter is, of course, altered. In these conditions, too, he finds numerous pear-shaped, oval, and spindle-shaped corpuscles. Where the disease is not far advanced, the number of corpuscles may remain unaltered; but in the later stages they are almost invariably markedly diminished. He then gives in tabular form the results of the examination of the blood from forty-eight cases, including cases of chlorosis, peliosis rheumatica, purpura hœmorrhagica, lymphoma (of neck and axilla), syphilis, cancer ventriculi, cirrhosis of liner (with icterus), urticaria chronica, anæmia in chronic dysentery, scurvy, anæmia after parturition, abortion, pneumonia, and after rheumatism; cases of chronic jaundice, alcoholic, phthisis, ulcer of stomach, leukæmia, pernicious anæmia, catarrhal jaundice, &c.

The lowest number of red blood-corpuscles was found in cases of pernicious anæmia, 1·0 and 1·1 millions per cb.mm.; ulcer of stomach with great hæmorrhage, 1·1 millions; leukæmia, 1·1. The largest numbers were met with in peliosis rheumatica, 6·1 millions; and chlorosis, 5·5 millions (though in some cases of chlorosis they were as low as 2·5 millions). The number of white blood-corpuscles was lowest in chlorosis, 11·5 hundreds, and pernicious anæmia, 15·0 hundreds per cb.mm.; and highest in leukæmia, 7787·0 and 7240·0 hundreds,—the proportion of white to red in these cases being in—

Chlorosis, from 1 white to 313 red, to 1 white to 1238.
Pernicious anæmia, from 1 white to 391 red, to 1 white to 732 red.
In leukæmia, from 1 white to 3 red, to 1 white to 5 red.

In some cases of cancer and anæmia, he concludes that a diminished number of red blood-corpuscles is the only change. In some diseases—peliosis rheumatica, chlorosis, cancer ventriculi, scurvy, chronic diarrhœa, and ulcer of the stomach—the blood-corpuscles are of normal size, though the numbers vary from 6·1 millions in peliosis rheumatica, on the one hand, to 1·1 millions in ulcer of the stomach, on the other hand.

The average diameter may be diminished along with the number of red blood-corpuscles, as in cancer, or apart from any diminution, as in chlorosis. Again, it may be increased, as in pernicious anæmia and in cirrhosis of the liver. In some cases, although the average diameter is normal, the corpuscles may be larger and smaller, varying between 10m. and 6m. or 10m. and 3·3m. in cases of leukæmia; and in some cases these differences are even more marked.

Irregular red blood-corpuscles are met with in all cases of chlorosis, purpura, syphilis, cancer, phthisis, cirrhosis hepatis, leukæmia, pernicious anæmia, scurvy, acute anæmia, &c.

He sums up as follows:—

In health, the mean diameter of the red blood-corpuscles is from 8·0 to 7·7m., the extremes being 9·3 to 6·7m.

In disease, especially anæmia, the mean varies from 8·0 to 6·2m., the extremes being 12·9 and 2·9m.

Dwarf red blood-corpuscles are found in large numbers in all cases of anæmia, and especially where there is a rapid increase in the number of blood-corpuscles, as after hæmorrhage, where there is a rapid rise of these corpuscles. In one case they increased from 3 per cent. to 49 per cent., from which fact the author argues that these dwarf red blood-corpuscles are nothing but young or growing red blood-corpuscles.

Giant red blood-corpuscles are found sometimes in anæmia, chlorosis and cirrhosis of the liver, but usually in pernicious anæmia.

In tetanus, the average size of the red corpuscle is usually increased, but this is due to an increase in the number per cent. of the large corpuscles (over 8·0m.), and not to any *great* increase in the size of individual corpuscles.

G. SIMS WOODHEAD.

4. **Eichorst on Poliomyelitis Anterior Acuta.**—In the anterior horn of the spinal cord there are one or two myelitic foci, seated most frequently in the lumbar and cervical enlargements, either unilateral or symmetrical, varying in size from an almost microscopic area to a tract measuring 30mm. in length and even more. These areas are of a reddish-brown or a greyish-red colour, and are diminished in consistence as compared with the normal standard. Eichorst has examined the redder of these two forms in a child aged two years old. He found a great over-filling of the blood-vessels, changes in their walls, and an increase of the neuroglia. The blood-vessels had here and there small aneurysmal dilatations upon them, their walls were unusually rich in nuclei, and were partially thickened at places in the form of transverse bands (might this not have been a form of periarteritis leading to contraction and intervening aneurysmal dilatations, as in the case of miliary aneurisms in the brain?); and in the lymph canals of the adventitious coat, there were fat globules, cellular elements, including leucocytes, with only occasionally crystals of hæmatoidin; also compound granular corpuscles which extended into the surrounding tissues. The neuroglia was large in amount and rich in cells; the ganglionic cells were few in number, and in some there was a peculiar process of vacuolation going on. Eichorst finishes his remarks on the microscopical changes by alluding to the theories as to their nature. According to Charcot the process is a parenchymatous myelitis. Others suppose it to be interstitial in nature; while a third set believe it to be both a parenchymatous and interstitial change, co-extensive with, but independent of each other. Of course, in this disease, there is an atrophy of fibres in the anterior nerve-roots corresponding to the acute destruction of nerve-cells. There is a great analogy between these

theories and the theories which have been advanced in regard to acute Bright's disease, and a consideration of them may lead us to arrive at some conclusion as regards the actual process occurring in the cord. In acute Bright's disease some have described great catarrhal, tubular, or parenchymatous changes, while denying any interstitial change however slight. It was argued that the inflammation commenced in the tubules, and was manifested by proliferation of the epithelial cells; but such pathologists forgot that in order to have catarrhal changes there must have been previous irritation in the shape of the vascular phenomena of inflammation leading to interlobular and even intertubular exudation.

It has now been proved that acute Bright's disease may or may not be complicated by catarrhal changes in the tubes, but in either case there is always inter-lobular exudation; in the form where the catarrhal changes are slight in amount, the inflammatory reaction is not very strong, consequently a less amount of lymph is exuded than in the catarrhal form, and the less lymph there is present, the less will be the proliferation of the renal cells, as it is less irritating in proportion to its quantity. Of course it is quite possible that a special virus may exist which might so irritate the renal cells as to cause them, alone of all the elements in the kidney, to proliferate; but as this theory has never been seriously proposed, it may be remarked that a purely catarrhal Bright's Disease without some interstitial changes is problematical. So with regard to "infantile paralysis" no special irritant is known to be present capable of irritating any one special element in the cord, therefore the parenchymatous and interstitial theories fall through, and probably the change is a co-extensive interstitial and parenchymatous process set up by the primary irritation of the vascular phenomena of inflammation. In other words, we have both the vascular and tissue changes peculiar to inflammation, and the tissue changes are not peculiar in that they are limited to one tissue element (whether parenchymal or interstitial), as some have supposed, but they follow the pretty general rule of involving every element of the inflamed area.

5. **Eichorst on Cortical Centres of Speech.**—Wernicke supposes that there are two centres in connection with speech—one motor, the other sensory. The motor centre is located in Brocka's convolution and the Island of Reil, while the sensory centre is in the upper temporal convolution, and stands in very close connection with the acoustic centre and its nerve. In the sensory centre phonic impressions are received and elaborated in order to form materials for conversation, and when required can be released and sent by means of a system of association fibres running from the sensory towards the motor centre, where they are co-ordinated and finally projected along the nerves to the articulating organs, where speech results. From this scheme the mechanism of aphasia is seen to be various. If the conduction of acoustic impressions is permanently interfered with, the consequence is either a dumbness or a deaf-mute condition. The latter occurs in children who are so young as to have had no knowledge of language before they were afflicted; their sensory speech-centre had no storage of words in it, so they are doomed to silence, but their motor speech-centre is still there, and may by careful education be called into play. If the sensory-centre is destroyed, the patient hears, but does not understand what is said, a spoken word being a mere noise. If we ask the patient to point out any object which we tell him to indicate, he fails to do so, because he is unable to understand the meaning of expressed words, and if the patient attempts to speak himself the confusion of words is great. A. M. ADAMS, JUN.

6. **Heubner on Cerebral Infantile Paralysis.**—The case here related, which is of considerable interest, was that of a girl, two and a-half years of age, who was healthy up to the age of nine months, when she was seized with a feverish attack, which lasted several weeks, at the end of which time all four limbs were paralysed, and showed marked muscular contracture, which condition remained until her death at two and a-half years. On post-mortem examination, there were found traces of an old endocarditis, and of an embolic renal infaret, as well as a canalised embolism in a sylvian artery, several extravasations in the cerebral substance which had become cystic, a relatively large loss of substance in the pons varolii, and complete destruction of the pyramidal fibres. The pyramidal tracts in the medulla oblongata and spinal cord had undergone secondary degeneration. Specially noteworthy is it that the sensibility remained intact throughout, and the psychical functions were well developed.

7. **Ewald and Kobert: Is the Lung Air-tight?**—The experiments here recorded go to show that the lungs of mammals are not completely air-tight under a pressure which is distinctly less than that which the respiratory muscles are capable of producing. In order, in the first place, to ascertain the extremes of intra-pulmonary pressure to which the lungs of living animals may be exposed, the trachea was attached to a tube which was in communication with a manometer and which communicated by means of a valve with the outside air. This valve could be arranged so as to open either outwards or inwards according as it was desired to obtain the maximum negative or positive pressure. In this manner it was found that the maximum expiratory pressure in rabbits varied from 15mm. to 30mm. of mercury, in dogs from 50mm. to 90mm. The maximum inspiratory pressure was usually somewhat less than these figures, but occasionally (as in new-born dogs) it slightly exceeded the expiratory pressure. During coughing, Ewald and Kobert observed that in dogs the maximum pressure was attained to.

They found, further, that when the lungs were distended with air to a point considerably under the above-noted maximum pressure, there was invariably an escape of air through the walls of the alveoli and of the trachea. As might be expected, the air, as it escaped through the tracheal wall, became collected in the first place in the subcutaneous tissue of the neck, just as we find clinically to take place in whooping-cough for example, while that portion of air which escaped through the alveoli passed at first, and most easily, into the alveoli, and later, and with greater difficulty, into the circulation. In dogs, for example, a considerable quantity of air found its way into both sides of the heart and into all the blood-vessels, after an intra-pulmonary air pressure equal to 35mm. of mercury had been maintained for from 2 to 3 hours. In the case of rabbits, the same effect followed in 1 to 1½ hours under a pressure of 25mm. of mercury. When the pressure had been kept up for longer periods than those mentioned, the air found its way into the retro-peritoneal connective tissue, into the thoracic cavities, and at last into the cellular tissue of the body generally. It is to be specially observed that in these experiments there was no laceration of the pulmonic tissue observable. These experiments explain those obscure cases of pneumo-thorax and air in the blood-vessels in which the integrity of the lungs has been maintained. The authors believe that their observations also explain those instances of suicide in which death was produced by making strong expiratory efforts while the glottis is kept closed.

J. Graham Brown.

8. **J. Coats on Infarctions of the Liver.**—This rare and interesting condition is reported as presented to the Glasgow Pathological and Clinical Society in a case of malignant disease of the head of the pancreas,—"Strictly demarcated areas, frequently wedge-shaped, which were strongly suggestive of infarctions." Both portal vein and hepatic artery were involved in a cancerous tumour in the head of the pancreas. "The former where it passes behind the pancreas was greatly narrowed so that a probe could not be passed. The latter was surrounded by matted tissue, and contained a blood clot, probably a thrombus. Dr. Coats suggested that this double interference with the circulation had probably induced necrosis in certain parts of the liver."

9. **Oscar Israel on the Possibility of Cultivating Actinomyces.**—Dr. Israel shows that hitherto one of the great difficulties in connection with the classification of the actinomyces, has been the want of some means of obtaining pure "cultivations." He points out some of the obstacles in the way of getting this pure cultivation, such as the position of the organism imbedded in the upper jaw, &c., from which it cannot be readily removed; the death and calcification of the organisms; and, lastly, its very slow rate of development.

He was not able to get a growth in any of the broths or fluid cultivating media, nor in peptonised meat-gelatine; but he has at length succeeded in obtaining a cultivation on Koch's inspissated serum. This serum he treats by placing for ten minutes over boiling water, so that a thin layer on the surface is hardened, and retracts from the walls of the tube, in order that there may be little further inspissation during the long period at which the serum must be maintained at the body temperature.

The inoculation is made by means of sterilised wire or trochar through the wadding plug, and at the end of about fourteen days the actinomyces appears as a thin, rough, velvet-like, light, dry covering on the surface of the serum, readily seen by means of transmitted light. At the end of eight weeks the growth is not more than ·5cm. broad on each side of the line of inoculation. It then advances, forming small punctiform or grass-like masses, which, examined, have the characteristic appearances of those met with in the serpiginous ulcers in cattle, &c.

A good preservative medium for this fungus is a ten per cent. solution of gelatine, gently warmed and then rapidly cooled. The author has not as yet been able to inoculate animals, and so far has not been able to study the development of the organisms, or to assign to it its proper botanical position.

G. Sims Woodhead.

## *REPORT ON THERAPEUTICS.*

1. **Kassowitz.**—Die Phosphorbehandlung der Rachitis. (The Treatment of Rickets with Phosphorus.) *Zeitschrift f. klin. Med.*, vol. vii. pp. 36 and 93.
2. **Neudörfer.** — Zur Chloroformnarkose. (On Chloroform Narcosis.) *Deutsche Zeitschrift für Chirurgie*, 1883, p. 365.
3. **Repoud.**—Ueber die Antiseptische Wirkung des Salicyl-resorcin-ketons. (On the Antiseptic Action of Salicyl-resorcin-keton.) *Fortschritte der Medicin*, vol. i. p. 355.

1. **Kassowitz on the Treatment of Rickets with Phosphorus.**—In this long and interesting article the author details experimental and clinical observations of the utmost value as bearing upon the theory of the curative action of phosphorus in the treatment of rickets. In the first portion of the

article he describes with great minuteness the changes which take place in the growing bones of young rabbits under the influence of that substance. He took four of these animals, six to eight weeks old, and gave them daily a very small dose of phosphorus (0·00015 gramme) in a pill, continuing the administration for a period varying from twelve to forty-two days in different cases. To four other animals of the same age he gave a larger daily dose amounting to 0·0004 gramme, and continued it for similar periods. On careful microscopic examination of the growing bones of the animals, he found that there was a remarkable difference between the influence of large and of small doses of phosphorus, as the following details show:—

(1.) Large doses of phosphorus, when administered to growing animals, cause a visible dilatation and increase of the blood vessels of the most recently formed layer of bone, which results in a distinctly increased fusion of the cartilage and bone.

(2.) Very small doses of the same substance diminish in a very remarkable manner the normal fusion of the cartilage and young bone, and give rise to a diminution of the number and size of the blood-vessels.

Since in rickets there is always an increase of vascularity in the growing cartilage and the most recently formed bone, with simultaneous and distinct dilatation of the blood-vessels, and since, as Kassowitz here shows, all the other symptoms of rickets are dependent for their origin upon this inflammatory hyperæmia and vascularisation of the osteogenetic tissue and recently formed bone, it follows that any agent which can control this vascularity will be of use in the treatment of rickets.

The value of phosphorus in the treatment of rickets is fully illustrated in the second part of this article, in which the author details the results of 560 such cases. To children under a year old he gave doses amounting to half a milligramme of phosphorus daily, and to those from one to two years old the dose administered was one milligramme. The phosphorus was given in the form of an oily emulsion (olive oil, gum arabic, syrup), and was then readily taken by children. The appetite generally improved under this treatment. The results of the very numerous cases here given show in the most striking manner the great value of phosphorus in rickets. The indications for its administration as given by Kassowitz are as follows:—

In the slight cases in which the disease only shows itself in thickening of the ends of the ribs and delay in closure of the fontanelles, phosphorus is not required, the ordinary hygienic treatment sufficing to produce a cure. Where, however, there is softening of the cranial bones along with nervous symptoms, particularly spasm of the glottis, phosphorus is strongly indicated and proves very useful. In all cases, further, in which the bones of the limbs are affected, phosphorus ought to be administered, and it is in such patients that the most striking results are obtained.

2. **Neudörfer on Chloroform Narcosis.**—Believing that the narcosis which follows the inhalation of chloroform is due to the action of the drug upon the red blood-corpuscles diminishing the affinity of oxygen to the hæmaglobin they contain, and that, therefore, the chloroform narcosis is at last really a form of asphyxia, Neudörfer filled large bladders with pure oxygen, and added definite quantities of chloroform. This mixture he administered to various patients, with the result that narcosis speedily followed; and that when the administration was discontinued, the patients almost immediately recovered consciousness without any one of the well-known disagreeable after-effects of the drug. In one particular case the contrast in the effects of chloroform when administered in the ordinary way, and by means of this method, was very

great. It is well known that chloroform does act upon the red corpuscles, but it seems doubtful whether the small quantities necessary to produce narcosis would have much effect. Whether the hypothesis on which Neudörfer founded his method be correct or not, these observations are of much practical interest.

3. **Repoud on the Action of Salicyl-resorcin-keton (a new Antiseptic).**— The toxic symptoms which accompany the therapeutic action of resorcin and of large doses of salicylic acid induced Repoud to make physiological and therapeutic experiments with salicyl-resorcin-keton. This crystalline substance, which is produced by heating salicylic acid along with resorcin for several hours at a temperature of 195° to 200° C., has a slightly aromatic odour, and a not disagreeable taste. It is readily soluble in alcohol and glycerine, but only very slightly in water, and this want of solubility gave rise to the hope that its antiseptic and antifebrile action would be developed more slowly and more quietly, and would last longer than is the case with the two substances from which it is formed. To test its antiseptic action, it was mixed in varying proportions (1 in 10, 1 in 20, 1 in 30) with finely divided pancreas, and the mixtures set in open vessels in an incubation chamber. During a period of several weeks no bacteria were developed, nor was there any putrefaction. Watery solution of 1°/₀, on the other hand, only delayed putrefaction for a short time, and ½% solution of salicyl-resorcin-keton had a considerably weaker antiseptic action than solutions of salicylic acid and of phenol of corresponding strengths.

After he had found that a dose of 4 grammes of salicyl-resorcin-keton, when administered to a rabbit, had no poisonous action, Repoud himself took several doses of 2 grammes to ascertain the physiological action. The urine which passed subsequent to such doses contained a certain quantity of that substance unaltered, and in addition salicyluric acid and ether-sulphuric acid, thus showing that the salicyl-resorcin-keton breaks up in the organism into salicylic acid and resorcin. Its administration to various patients showed that the salicyl-resorcin-keton had a distinct antipyretic action without any disagreeable symptoms. In surgery its use as a dressing appears to have been of great service.

J. Graham Brown.

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We are glad to learn that the Society for the Promotion of Research in Medicine, which has already done so much good by acting as an intermediary between the Home Office and the experimental physiologists and pathologists, has requested Professor C. S. Roy, of the Brown Institution, to undertake a series of researches on the pathology of Foot and Mouth Disease, regarding which so little is known in spite of the opportunities for such inquiries afforded by that wide-spread enzöotic. It seems somewhat remarkable that Government should not have taken the initiative long ago in directing scientific inquiries into the nature of a disease which annually causes such havoc amongst the cattle of this country, and so seriously affects farmers. That this work should have been left to a private society is an unfortunate indication of how behindhand the Government invariably is in setting science to work to elucidate questions of national importance such as this. Why should this country not be provided, as Germany is, with a hygienic and pathological laboratory kept up at the public expense and used for the purpose of inquiries similar to that which it is now left to a private society to inaugurate? The superintendent of such a laboratory, unhampered by having to teach, would have an opportunity of doing work of untold value to the community.

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## ORIGINAL ARTICLE.

# TELEGRAPHISTS' CRAMP.

By THOMAS WEMYSS FULTON.

TRADE palsy, or the loss of the power to perform the specific co-ordinated movements of certain occupations, has long been known to the medical profession as it occurs in scriveners and clerks, in violinists and players on other musical instruments, in tailors, compositors, bricklayers, smiths, milkmaids, miners, &c.,; but that telegraph-operators were occasionally affected with a similar impotence was not generally known until 1875, when M. Onimus read a paper to the *Société de Biologie* on what he termed *mal télégraphique*.

In this country it has been spoken of as "the rarest of medical curiosities," and as a rarity in comparison with other trade cramps; but, in reality, it is much more common than is supposed. When an individual suffers from writers' cramp, or almost any of the other trade impotences, he is usually disabled from earning his livelihood, and naturally seeks medical advice; but the more fortunate telegraph-operator, when he loses the power of working one instrument, is transferred to another requiring a different set of movements, or is put to the writing of messages, and thinks little more about the subject. As a matter of fact, telegraphists' cramp is relatively commoner than writers' cramp. I have seen four cases, and have had three described to me, while I have heard of only one case where a telegraph-clerk was affected with *chorea scriptorum*. Since every word telegraphed has, of course, to be written down, it is evident that the co-ordination required for telegraphic manipulation is more liable to break down than that required for writing. The reason of this will, I think, soon be seen.

M. Onimus correctly observes, that it only affects the operators at a particular instrument—viz., The Morse; and, in order to understand how this comes about, it may be well to consider, first of all, the physiology of the movements required to work the various instruments. Those almost exclusively employed in this country are

—(1) The Single-needle; (2) The Wheatstone Perforator; (3) The Morse.

(1.) *The Single-needle*, so called from the vertical needle, whose deflections to right and left constitute the signals, is the least important of all. The transmitting part of the apparatus consists of two horizontal parallel bars, which are depressed, alternately or in succession, through a space averaging a quarter of an inch, their elevation being brought about by means of a spring. Depression of the left bar, by a tap of the left hand, causes deflection of the poised needle to the left; similarly, a tap by the right hand on the other bar deflects the needle to the right. The movement is, therefore, one of simple flexion and extension, chiefly or solely at the wrist. The left hand is more used than the right. The duration of the flexor and extensor contractions is equal, individually and relatively. The average speed is twenty-five words per minute, involving an average of 179 flexor, and the same number of extensor contractions of the left hand, and 109 similar contractions of the flexors and extensors of the right hand. I can discover no case of an operator at this instrument being affected with cramp, or inco-ordination of any kind. This is probably explained by the simplicity of the movement, the comparative slowness of the working, and the further fact that these instruments are neither numerous nor employed on busy circuits.

I may mention here that the operators at cable instruments, where the manipulation is of the same character, but much slower, are never affected.

(2.) *Wheatstone's Perforator.*—The object here is to punch holes in a strip of paper, which, by being run through the automatic transmitter, determines the signals. Three discs are depressed vertically, alternately and in succession, by being sharply struck with small mallets, which are held one in each hand as represented in fig. 1. The position of the fingers may be somewhat varied. The range of movement, which takes place chiefly at the wrist but partly at the elbow, is something under two inches. The left hand is used more than the right. The flexor and extensor contractions are of equal duration, and average 380 each of the left, and 300 each of the right per minute. The manipulation at this instrument never produces the *mal telégraphique*; but when the left arm of the operator begins to tire after prolonged exertion, some degree of inco-ordination is apt to appear, so that the discs are liable to be missed.

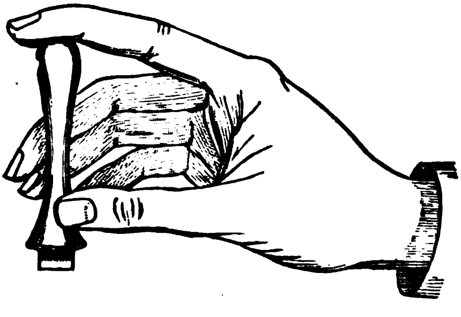

FIG. 1.

(3.) *The Morse.*—This is the common instrument, and it is only in connection with its manipulation that the crampy malady arises. The transmitting part, called the "key," consists essentially of a lever moving on a hinge fulcrum (fig. 2). The proximal arm is surmounted by a knob and is kept elevated by a spring which depresses the distal arm. The manipulation consists in a succession of depressions of the proximal arm against the resistance of the spring. The range of movement of the key varies from about $\frac{1}{12}$ to $\frac{1}{8}$, or even $\frac{1}{3}$ of an inch, and the resistance of the spring varies from two to four ounces. The thumb, index, and middle fingers of the right hand are applied somewhat loosely to the knob (fig. 2), and are held more or less rigid in a position of flexion and opposition; but they may be varied a little. The movement is one of flexion and extension, and takes place chiefly at the wrist, but slightly at the elbow, and in part also at the metacarpo-phalangeal joints of the index and medius; these fingers being slightly raised from the knob between each group of contractions which form a letter. The muscles called into play in the upward movement are the extensors of the carpus and of the digits; particularly that part of the common extensor which commands the index and medius, and the special extensor of the index. The extensors of the thumb are also involved. The downward movement is produced by the flexors of the carpus and of the digits, especially those portions of the common flexors which act on the index and medius. And, further, since these fingers and the thumb are maintained in a position of flexion and opposition, there is slight, constant, but variable contraction of the adductor, opponens, and flexores pollicis, of the carpal extensors, and of the flexors of the digits mentioned. It is probable that the interossei and lumbricales are also brought into operation. The triceps and the flexors of the fore-arm are also implicated.

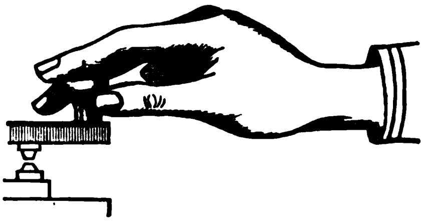
FIG. 2.

Each depression of the key establishes an electric current which, flowing along the wire to the receiving instrument, passes into a coil enclosing a soft iron core, which, therefore, is transformed into a magnet so long as the current continues. Suspended on a hinge above the coil is a horizontal lever, the proximal end of which bears an armature (A) which is pulled down every time the core is magnetised, and is elevated in the intervals by a spring. The distal arm carries a thin revolving wheel (B), and

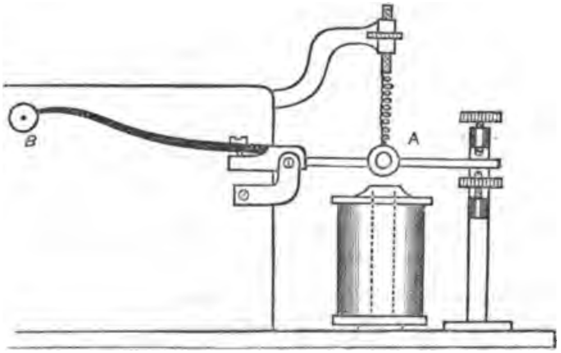

FIG. 3.

this wheel, while partially immersed in an "ink-well" below, comes into relation above with a strip of paper kept moving at a definite rate by means of clock-work. Thus, it will be observed that the transmitting lever and the recording lever move synchronously and in unison. Each time the key is depressed the core is magnetised, and the ink-wheel, pressing against the running slip, produces a linear mark whose length is equal to the duration of the depression of the key, and, therefore, to the duration of the flexor contraction. Similarly, the length of the interruptions between the linear marks represents the duration of the elevation of the key, that is, of the extensor contractions. Hence it follows that the recording slip presents us with an accurate myographic picture of the number, kind, duration, and relativity of succession of the muscular contractions. For instance, the word "Telegraph" requires eight long and fifteen short flexor contractions, and nine long and fourteen short extensor contractions, in an order represented in fig. 4. The alphabet of the Morse language is given in fig. 5, and is made up of two types of flexor and three types of extensor contractions, whose durations are given below.

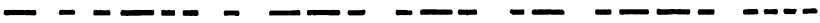

FIG. 4.—"Telegraph."

| | | | |
|---|---|---|---|
| A .— | H .... | O ——— | V ...— |
| B —... | I .. | P .——. | W .—— |
| C —.—. | J .——— | Q ——.— | X —..— |
| D —.. | K —.— | R .—. | Y —.—— |
| E . | L .—.. | S ... | Z ——.. |
| F ..—. | M —— | T — | |
| G ——. | N —. | U ..— | |

FIG. 5.—The Morse Alphabet.

The average speed of working is 35 words per minute, and taking the average of 210 words from a printed speech in the newspapers, the contractions per minute are found to be as follows:—

FLEXOR CONTRACTIONS.

| | | Duration. |
|---|---|---|
| Short | 183 | 0·05 sec. |
| Long | 114 | 0·15 „ |

EXTENSOR CONRACTIONS.

| | | Duration. |
|---|---|---|
| Short | 174 | 0·05 sec. |
| Long | 88 | 0·15 „ |
| Longer | 35 | 0·3 „ |

The calculation of the duration is made from experiment. The number of contractions varies with the words.

Thus an operator makes between thirty and forty thousand contractions per hour: on busy circuits he may be engaged constantly for nearly eight hours.

The limitation of the range of movement; the great number of the contractions, their rapidity, difference of duration, and variability of succession, constitute the important and differential features of the Morse manipulation.

When the contractions are properly co-ordinated we get what may be called the normal Morse language (fig. 4), and deviations from this normal type may occur in several directions. In the first place, I may say that some individuals rapidly become expert and accurate operators —"He sends like a Wheatstone," that is, with the precision of an automaton; while others, after months of assiduous practice, fail to educate their muscles sufficiently to produce the minimum of sixteen words per minute, and have to relinquish the attempt. The best and most rapid operators are found among the younger clerks; as they get old—not necessarily in years, but old in practice—their co-ordination becomes impaired, and their manipulation slower and less perfect. The malco-ordination sometimes affects the extensor factor alone, as represented in Fig. 6; sometimes only the flexor contractions are altered; but most commonly both, as in fig. 7. Many have what they call their difficult letter or letters; that is, there is a persistent and marked malco-ordination in connection with such letters; and this cannot be avoided by voluntary effort unless the rapidity of the manipulation be greatly reduced. For example, V (···—) often becomes a bad U (··—) from the final dot being "run into" the dash. In other words, the inhibition of the flexor and the initiation of the extensor contraction do not occur, or but imperfectly. Again, C (—·—·) often becomes T R (— ·—·) from the abnormal prolongation of the initial extensor contraction. But it is interesting to observe that this disordered co-ordination may frequently be prevented by *thinking* of other letters whose collective signs constitute the signs of the difficult letter. For instance, the operator, by picturing to his mind S (...) and T (—), and substituting a short for a long extensor contraction, succeeds in producing V. Similarly, C may be frequently made by picturing N(—·) N(—·) to the mind, and varying the duration of the intervening extensor contraction. Precisely the same co-ordinated movements are produced, but, as it were, by an artifice. Such malco-ordination is the source of many telegraphic errors, and if it exist to a marked degree it may unfit the operator for transmitting messages, without the typical cramp being produced.

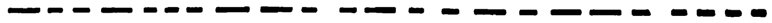

FIG. 6.—"Telegraph."

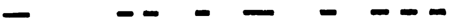

FIG. 7.—"Times."

Telegraphists' cramp may begin in the above way; but more frequently the first thing that attracts the attention of the operator is that he runs together the dashes in such letters as O and J—or, in physiological language, he fails to inhibit the long flexor contractions when there is a succession of them, and has to manipulate with greater slowness and effort. By-and-by a feeling of stiffness and tiredness is experienced on the extensor aspect, followed by similar but less pronounced sensations in the flexor region, and the fingers may feel a little crampy, but since their position may be varied considerably, they are not prominently affected. Temporary relief may be obtained by such variation of the fingers, by supporting the elbow, by holding a small object, such as a pencil, between the fingers, or by altering the sound or the resistance of the key; in other words, by varying the sensory impressions. But the relief is only temporary; the condition gradually gets worse; the tiredness becomes pain as the stiffness advances towards rigidity. The knob of the key, instead of being loosely encircled by the fingers, is seized firmly; the spasm of the opposing muscles increases; and the movement is gradually transferred from the wrist to the elbow as the higher flexors and extensors come to replace those which are disabled below. If the manipulation be persisted in, the spasm spreads further and further up the limb, and every muscle that attempts the movement is rapidly affected. The elbow, acutely flexed, is adducted, elevated, and carried forwards, and the operator, instead of facing the instrument, sits sideways, with his right shoulder bent over the key. The movement is now almost limited to the shoulder-joint; the whole arm makes exaggerated movements; the key, instead of receiving a tap, gets a heavy blow; and thus the manipulation, instead of being nimble and easy, becomes slow, laborious, and painful. The malady rarely gets further, for an obvious reason; but in one case it was much more pronounced. This operator, who had suffered for years, found it necessary to flex the right thigh, and, grasping the edge of the table with his left hand, twisted himself over the instrument in an attitude eminently ludicrous. Each thump was accompanied by a lurch forward of the head and back; and so closely were his mind and energies involved, that he could only articulate Yes or No in reply to a question,—if he had to utter a sentence he had to stop his manipulation.

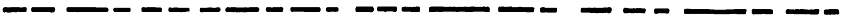

**FIG. 8.—Myographic representation of the malco-ordination of Telegraphists' Cramp. It is an attempt to form the word "Instruction."**

The affection usually progresses slowly at first, taking months to develope, but once fairly established its advance is much more rapid. In one of the cases, however, it was quite sudden. The operator, who was a newspaper "special"—men selected for the rapidity of their manipulation—was astonished to find on returning from his holidays that he had almost lost the power of operating.

M. Onimus states that those of a nervous temperament—and, *ergo*, women—are especially prone to be affected; that the condition is accompanied by insomnia, palpitations, vertigo, and other subjective sensations; and that melancholia, loss of memory, moral and physical atony, and even insanity may supervene. Certainly a sufficiently gloomy outlook! English telegraphists may, however, derive comfort from the reflection that the mercurial disposition and more marked neurotic tendency of their Gallic *confrères*, have a deal to do with the production of such a disastrous result. It is in Paris that hysteria, and other functional disorders of the nervous system, obtain their greatest triumphs. Of the four cases I have seen, three were in young persons, of whom only one was a female, and another somewhat excitable; while the fourth, in whom the condition was most aggravated, was a robust man, above forty, and with a temperament that would have done credit to a Stoic. None were affected with any of the subjective sensations or mental disorder referred to by M. Onimus. On the other hand, some individuals, excitable and even hysterical, were quite exempt. The affection may seize upon the young clerk, or on one who has comparatively little manipulation to perform, while the older operator, or the one who does the greatest amount of work, may escape. The condition is usually recovered from by merely abstaining from the manipulation, and this recovery may be complete, so that normal co-ordination may be regained in a year or sooner; but the affection is liable to recur under prolonged strain. I hope on a future occasion to refer more particularly to the physiological side of the question, and to consider in detail the nature of the co-ordination required in these complicated actions, and what light such inquiry may throw on the pathology of the disease.

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# CORRESPONDENCE.

## EDINBURGH UNIVERSITY STUDENTS' REPRESENTATIVE COUNCIL.

THE past month should be ever marked with a white stone in the annals of the University of Edinburgh, for it has seen the origin and first fruits of the Students' Representative Council, a body which has within it the possibilities of a glorious future.

It has long been urged against Scottish University life that it neglected the man while fostering the mind; that the majority of our students knew little and cared less about the feelings and pursuits of their fellows. Some few, of course, met one another in the various societies; but they were few: and to the others the sole object of life was to slave on amongst books,—an aim excellent indeed, but narrow; calculated rather to turn out the pedant than the cultured man.

There had for long been a feeling abroad that "something must be done"; and these ideas took practical shape in December, when, on the invitation of the Presidents of the Students' Club and the two political associations, representatives of all the societies met in Drummond Street Hall to consider the matter. They appointed a provisional committee to draft a constitution for the proposed Council. After many meetings and much consideration, on the 17th January, by kind permission of the Senate, a general meeting of students was held in the Humanity Class-room. Here it was agreed enthusiastically that the Council should be formed, and its constitution, &c., were agreed upon. On Saturday, the 26th, members of Council were elected in all Faculties, and its first meeting was held, at which arrangements were made in connection with Sir Stafford Northcote's inaugural address, which was entirely managed by the Council.

The excellent use made by the Council of its new organisation, and the quiet which consequently characterised this important occasion, have won for the movement extensive recognition and approbation both within and without the University. Sir Stafford Northcote's allusion to the Council in his address, and in his remarks to his committee later in the afternoon, were most satisfactory; and it was most pleasant to learn from them that the student-elected Rector so heartily approved of the aims of the Students' Representative Council, and expected so much from their future realisation.

The duties of the Council naturally divide themselves into two classes; the first the management of all students' business of a temporary character, as the inaugural address of a rector, torch-light processions, students' celebration of the tercentenary, &c. And there is the more important permanent function of calling into existence an *esprit de corps*, and a public opinion, and the establishment of a healthy academic tone within the University. So far the good proposed to be effected by the Council is most valuable, but somewhat intangible; a charge which cannot be brought against the next proposal,—the formation of a Students' Union, a Club and Debating Society, with a large building all its own, managed by students for students. It is to contain a hall (primarily intended for the Debating Society, but free at other times for students' meetings), &c., reading and dining-rooms. Such a central organisation would draw together students of all years and all faculties, who would thus learn to know and respect one another. It would introduce a new ambition into university life, that of leading our fellow-students, and it certainly would further bind us together in a manner of which we now know nothing. What the Royal Medical Society has done for the comparatively small number of medical men who have passed through it, this Union would do for the whole University, knitting and binding us all together in a fellowship as valuable to ourselves and to the University as it is now difficult, nay impossible, of attainment.

W. E. HOME.

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# *REVIEW.*

**Practical Pathology: A Manual for Students and Practitioners.** By G. SIMS WOODHEAD, M.D., F.R.C.P.E.; Demonstrator of Pathology in the University of Edinburgh; Pathologist to the Royal Hospital for Sick Children, &c. Edinburgh: Young J. Pentland, 1883.

THIS most useful volume is designed to supply the long-felt and pressing want of a guide to the practical work involved in the preparation and examination of morbid tissues. It is quite impossible for those who are not solely engaged in histological work to keep themselves *au courant* with the newer developments of microscopic technology; but none the less is it eminently desirable that the practitioner who has closely watched the clinical aspects of his case should be able, after death, not merely to recognise with the naked eye gross anatomical lesions which present themselves, but that he should also possess such knowledge as may enable him to prepare microscopic sections of the tissues involved, and to recognise the minute changes in structure which these may present. For all these purposes, a manual of this kind has become necessary; and we cordially welcome Dr. Sims Woodhead's work as admirably adapted to fulfil such requirements.

After a minute and careful description of the method of making post-mortem examinations, the author proceeds to detail the instruments required in histological work and their use; the various methods of hardening, cutting, staining, and mounting microscopic sections. This portion of the work is very full of practical details, and eminently serviceable. Dr. Woodhead then proceeds to describe pathological appearances which are found in connection with the various organs of the body—the liver, heart, blood-vessels, kidney, lung, spleen, alimentary canal, bones and joints, and nervous structures being in turn treated of. He finally describes tumours and the various animal and vegetable parasites met with in the human subject. In the case of each organ, Dr. Woodhead commences with a clear and concise description of the normal structure, and then describes in greater detail the pathological processes which are then met with.

When a second edition is called for, Dr. Woodhead will no doubt see the necessity of adding considerably to certain portions of the work which are at present somewhat scantily treated of; for example, the pathology of the nervous structures. It would also conduce materially to the value of the book if authorities were quoted and references given to the original works in which special points are more fully discussed.

One great feature of the work consists in the admirable chromo-lithographic illustrations which are so profusely scattered through its pages, and which give the book great additional value.

Dr. Woodhead has done great service to the profession, and particularly to the school to which he belongs, by the publication of such a work as this, for which his exceptional experience in teaching practical pathology has made him eminently fitted. There is good reason to congratulate the Edinburgh School upon the fact that as it was the first to develope on a large scale the teaching of Practical Pathology, so now it has inaugurated a new advance in pathological text-books.

J. Graham Brown.

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## REPORT ON MEDICINE.

1. **Senator.**—Ueber Selbstinfection durch abnorme Zersetzungsvorgänge und ein Dadurch Bedingtes (Dyscrasisches) Coma. (On Self-Infection by Abnormal Processes of Decomposition, and the Dyscrasic Coma thereby produced.) *Zeitschrift f. klin. Med.*, vol. vii. p. 235.
2. **Klein, Langley, and Schäfer.**—Report on the Cortical Areas removed from the Brain of a Dog and from the Brain of a Monkey. *Journal of Physiology*, vol. iv. p. 231.
3. **Langley.**—The Structure of the Dog's Brain. *Ibid.* p. 248.
4. **Langley.**—Report on the Parts destroyed on the Right Side of the Brain of the Dog operated on by Professor Goltz. *Ibid.* p. 286.
5. **Klein.**—Report on the Parts destroyed on the Left Side of the Brain of the Dog operated on by Professor Goltz. *Ibid.* p. 310.

6. **Schäfer.**—REPORT ON THE LESIONS, PRIMARY AND SECONDARY, IN THE BRAIN AND SPINAL CORD OF THE MACACQUE MONKEY EXHIBITED BY PROFESSORS FERRIER AND YEO. *Ibid.* p. 316.
7. **Lazarus and Schirmunski.**—UEBER DIE WIRKUNG DES AUFENTHALTS IN VERDÜNNTER LUFT AUF DEN BLUTDRUCK. (The Action on the Blood-Pressure produced by continued Exposure to Rarified Air in a Pneumatic Chamber.) *Zeitschrift f. klin. Med.*, vol. vii. p. 299.
8. **Bull, W. T.**—ON THE INTRAVENOUS INJECTION OF SALINE SOLUTIONS AS A SUBSTITUTE FOR TRANSFUSION OF BLOOD. *New York Medical Record*, 5th January, 1884.
9. **Feinberg.**—UEBER DAS VERHALTEN DER VASOMOTORISCHEN CENTREN DES GEHIRNS UND RÜCKENMARKS GEGEN ELECTRISCHE, AUF SCHÄDEL WIRBELSÄULE UND CUTIS GERICHTETE STRÖME. (On the Behaviour of the Vasomotor Centres of the Brain and Spinal Cord when Electric Currents are allowed to act upon the Skull, Spine, and Skin.) *Zeitschrift für klin. Med.*, vol. vii. p. 282.
10. **Brunton, T. Lauder.**—ON THE PATHOLOGY AND TREATMENT OF SOME FORMS OF HEADACHE. St. Bartholomew's Hospital Reports, vol. xix. 1883.
11. **Riegel.**—UEBER DIE VERÄNDERUNGEN DES HERZENS UND DES GEFÄSSYSTEMS BEI ACUTER NEPHRITIS. (On Alterations of the Heart and Vascular System in Acute Nephritis.) *Zeitschrift für klin. Med.*, vol. vii. p. 260.
12. **Pellacani.**—DE L'ACTION PHYSIOLOGIQUES DE QUELQUES SUBSTANCES SUR LES MUSCLES DE LA VESSIE DES ANIMAUX ET DE L'HOMME. (On the Physiological Action of certain Substances upon the Muscular Fibre of the Urinary Bladder in Man and the Lower Animals.) *Archives Italiennes de Biologie*, 1883, p. 302.
13. **Ellenberger.**—UEBER DIE WIRKUNG DES PILOCARPIN BEI PFERDEN. (On the Action of Pilocarpin upon Horses.) *Fortschritte der Medicin*, vol. i. p. 457.

1. **Senator on Self-Infection by Abnormal Processes of Decomposition.**—Senator believes that acute and chronic dyscrasia may be produced, not only by the retention in the body of the normal excretory products, but also by the absorption of abnormal and poisonous products of decomposition which are formed within the body itself, as well as by the presence in unusual amount of those decomposition products which are normally formed within the organism. The chief sources of these self-formed dyscrasiæ are to be found in abnormalities of the digestive apparatus, as well as diseases of the bladder and severe anæmia. These dyscrasiæ show themselves chiefly in connection with the nervous system and the kidneys; and among the acute nervous affections which so arise, he classes uræmia, and in particular Kussmaul's diabetic coma, the cause for which latter disorder is to be found in the toxic effects of various excrementitious products. This diabetic coma occurs in connection with many other disorders besides diabetes mellitus. It is occasionally seen in pernicious anæmia, and it is not always associated with the falsely so-called aceton reaction in the urine.

2, 3, 4, 5, 6. **Klein, Langley, and Schäfer: Report on the Brains of the Dog and Monkey exhibited at the International Congress in 1881.**—It will be remembered that at a meeting of the Physiological Section of the International Medical Congress, held in London in 1881, Professor Goltz exhibited a dog from whose brain a large area of the cortex had been removed without producing any such effect as according to Professor Goltz would necessarily result if the theory, as usually held, of the localisation of function of the cortex, were true. At the same meeting Professors Ferrier and Yeo exhibited a monkey from whose brain a definite part of the so-called motor area had been removed and a localised paralysis produced, which, according to Ferrier and Yeo, could not result if the usual theory were not true. Since it was possible that in the first case the absence of localised lesion might be due to some portion of each cortical "area" remaining intact, and that in the second case the occurrence of localised paralysis might be due to injury of some portion of the brain other than the cortex, a committee was appointed, consisting of Dr. Klein, Mr. Langley, and Professor Schäfer, to examine the brains of the two animals, and to report as to the extent of the lesion in each case. These reports have just appeared and are contained in the papers quoted at the head of this abstract. They are very elaborate and exhaustive, but they only deal with the bare facts in each case, and do not contain any conclusions as to the theory of the localisation of function in the brain. The facts, however, speak for themselves.

Mr. Langley's examination of the right half of the brain of Professor Goltz's dog showed that the following parts of the cortex were destroyed: the posterior lateral part of prorean convolution in the suborbital lobe; the dorsal surface of the anterior limb of the sigmoid gyrus; the posterior limb of the sigmoid gyrus; the posterior third of the ento-lateral convolution; the posterior third of the supra-splenial convolution; the first splenial convolution; the dorsal part of the posterior third of the splenial convolution; almost the whole of the coronal and of the ecto-lateral convolutions; the posterior supra-sylvian convolution; the first and second convolutions; a portion of the anterior composite convolution; almost all of the posterior region of the posterior composite convolution.

The left side of the same brain was examined by Dr. Klein, who found an injury to the cortex corresponding pretty generally to that described by Mr. Langley on the right side—much of the cortex here also remaining intact.

In the brain of the monkey on which Professor Ferrier operated, Professor Schäfer found that there had been removed the greater part of the two central convolutions, and the adjoining parts of the frontal and parietal lobes on the left side of the brain. Underneath the lesion thus produced there had become formed, by secondary processes, in the medullary centre, an excavation nearly coterminous with the superficial lesion, and not involving the basal ganglia. The pyramidal tract connected with the left side of the brain had undergone Wallerian degeneration throughout its whole extent. There existed an unexplained tract of degeneration in the left lateral column of the cervical cord.

The first of Mr. Langley's articles contains a very valuable description of the structure of the dog's brain. It is divided into three parts—(1) a description of the fissures and convolutions; (2) an account of the literature relating to the fissures and convolutions; and (3) a brief description of a series of transverse sections through the brain.

7. **Lazarus and Schirmunski on the Action of Rarified Air on the Blood-Pressure.**—The observations contained in this article were made upon persons who were enclosed in a pneumatic cabinet, and were there exposed to more or less rarified air. The measurements of the blood-pressure were taken every ten minutes by means of Von Basch's sphygmomanometer applied to the

right radial artery. Each person remained in the cabinet for about an hour, during the first twenty minutes of which the atmospheric pressure was gradually diminished until it stood at half an atmosphere (380mm. barometric pressure). This pressure was maintained for the second twenty minutes, and during the third twenty minutes it was gradually raised until, at the end of the hour, it equalled the ordinary atmospheric pressure. It was then found, that as the air-pressure diminished the blood-pressure fell, until when half an atmosphere was reached it stood at 25-30mm. mercury lower than it was at the commencement of the experiment. This low level it maintained during the time the atmospheric pressure was kept low, but it gradually rose along with the latter at the conclusion of the observation. Tracings taken with Marey's sphygmograph show, further, that the pulse rose considerably in frequency when the air was rarified. The accuracy of these results was still further tested by directly observing the blood-pressure within the carotid artery of sheep (in the usual way) when introduced into the pneumatic cabinet. These last observations fully confirmed the results of the former series.

8. **Bull on the Intravenous Injection of Saline Solutions.**—The well-marked temporary improvement in the condition of the patient which followed intravenous injection of saline solutions as it was practised in cases of Asiatic cholera at the beginning of the century, called much attention to this procedure, and showed its safety as a therapeutic method. Within the last few years this practice has been again revived, and has proved to be of very great value in saving life in cases of great loss of blood. Dr. Bull gives here the results of his personal observation regarding the use of such intravenous injections. The solution he used was a modification of that of Schwarz, consisting of distilled water ℥xxxii., common salt ʒi.ss, carbonate of soda gr.xv.—the whole being warmed to 100°-104°F. This solution he injected into the vein through a canula, which was connected by means of an india-rubber tube with a graduated bottle containing the solution. The latter was placed at a height of two or three feet above the vein, and the solution allowed to flow slowly, so that the operation takes about fifteen or twenty minutes. Dr. Bull has performed this operation six times,—thrice in cases of great loss of blood after operations of various kinds, and thrice in cases of apparently fatal collapse after poisoning with coal-gas. In all of these patients recovery took place, save in one instance, where there was at all events marked temporary improvement. Dr. Bull details also a good part of the literature of the subject, and gives a table containing the results of all the recorded cases of intravenous saline injection.

9. **Feinberg on the Action of Electric Currents upon the Cerebral and Spinal Vasomotor Centres.**—In order to fill up some of the many *lacunæ* which exist in our knowledge regarding the influence of electricity upon the brain, Feinberg performed a series of experiments upon animals, and made many clinical observations, the results of which are embodied in this article. The experiments were performed upon rabbits and dogs, the latter animals being narcotised by means of subcutaneous injections of morphia. The influence of the electric currents upon vasomotor nerves was estimated by means of the temperature, a very fine and delicate thermometer being for that purpose inserted beneath the skin. Both faradic and galvanic currents were employed for stimulation.

Experimenting in this way, Feinberg found that galvanic currents applied to the skull caused first contraction, and subsequently dilatation of the cerebral vessels, and demonstrated the existence of vasomotor tracts in the cortex. Such galvanic stimulation to the cranium invariably caused contraction of the vessels in the extremities, with consequent depression of temperature. This lowering of the temperature in the limbs was considerable in amount, reaching to three or four degrees of the centigrade scale, and lasted for from ten to twenty minutes. After this period the local temperature rose to the normal point, or even, in some cases, mounted above that level.

The grey substance of the cord was also affected by galvanic stimulation applied over the region of the spine. The effect was here bilateral, the temperature being lower in two corresponding limbs equally, and it was found that the upper or lower extremities were affected according to the height on the spine at which the electrodes were placed.

The vasomotor centres in the brain and spinal cord were found to be capable of being affected indirectly by reflex nerve-paths. Peripheral stimulation of remote parts of the skin, as of the lower limbs, caused first contraction, and subsequently dilatation of the vessels of the brain to such a degree as to be readily observed with the naked eye when the brain was exposed to view by operation. This vasomotor change in its turn produced vascular contraction in distant parts. For example, if the skin over the lumbar region were stimulated with a faradic current, the temperature fell in the lower limbs. In the human subject Feinberg found that galvanisation of the scalp over one fronto-parietal region produced lowering of the temperature in the extremities. If these observations should prove to be correct when they come to be repeated, a very important therapeutic field will be opened up; for it may be thus possible by means of electricity so to modify the circulation in particular parts and organs of the body as to counteract local pathological conditions.

Feinberg also describes very briefly certain observations made under his guidance by H. Blumenthal on the influence of the galvanic current on the hepatic circulation. In these experiments the abdominal parietes were cut through in deeply narcotised rabbits so as to expose the liver to view. When now galvanic stimulation was commenced, the anode being placed over the third and the cathode over the eleventh vertebra, the liver became at once strongly hyperæmic. This hyperæmia lasted from fifteen to twenty minutes. These observations are to be described in detail in a future article.

J. Graham Brown.

**10. Brunton on the Pathology and Treatment of some Forms of Headache.**—In this paper Dr. Brunton discusses the pathology and treatment of various forms of headache. The pain felt in the temple when carious teeth are present is considered, and the view advanced that this temporal neuralgia is caused by local spasm of blood-vessels set up by the tooth irritation, or that it may be due to changes in the centre for sensation in the brain. The hippocampal suture is, according to Ferrier, the seat of sensation for the surface of the body. In regard to the dispute as to whether the blood-vessels causing this sympathetic pain are dilated or contracted, Dr. Brunton alleges that they are contracted usually at some part. The fact that the headache may change from forehead to occiput, he believes to depend on a change of spasm from the temporal to the occipital artery. He has found that a decayed molar in the lower jaw gives either temporal or occipital headache, while a decayed upper molar causes temporal headache further forward than that caused by a carious molar of the lower jaw. Sore throat, excessive action of the eyes, and biliousness, are next brought forward as causes, and the following practical hints are given.

Frontal headache associated with constipation is best relieved by salines; that above the eyebrows, when not accompanied by constipation, gives way usually to nitro-hydrochloric acid; that at the commencement of the hairy scalp, to alkalies.

The headache of plethora is usually frontal; that of anæmia, vertical; the rheumatic form has often tenderness to pressure over a great part of the scalp. For the last form Dr. Brunton recommends iodide of potassium (gr. 2½), with a drachm each of tincture of valerian and sal-volatile. He also speaks highly of salicylate of soda (2½ grs.) in sal-volatile every half-hour while the headache lasts.

D. Berry Hart.

11. **Riegel on Changes in the Heart and Vascular System in Acute Nephritis.**—In the discussion of the relation of renal disease and cardiac changes, the chronic forms of Bright's disease have been almost invariably solely considered. It is not generally recognised that in acute nephritis abnormal vascular tension and hypertrophy of the heart may also show themselves, and that within a very short period of the commencement of the malady. Several years ago, Riegel pointed out ("Ueber die Bedeutung des Pulsuntersuchung," Volckmann's *Samml. klin. Vorträge*, Nos. 144, 145) that this was the case; and in his present article he gives details of accurate observations he has since made on this subject, which lead him to conclude that in the majority of cases of acute nephritis a very striking increase in the tension of the pulse takes place very soon after the commencement of the process. A second symptom in such cases he found to be a more or less marked slowing of the pulse. The change in the heart appeared to come on as a secondary process, following the increased tension of the arterial system.

For the study of the relations which the vascular changes hold to the renal lesion, undoubtedly the post-scarlatinal globerulo-nephritis is the most satisfactory form of nephritis to deal with, and this because it is there possible to follow the development of the cardial and vascular changes from the first hours of the commencement of the disease. In these cases, Riegel has often found it possible to detect the signs of an increased arterial tension synchronously with the first appearance of albumen in the urine; and this was especially the case in the scarlatinal glomerulo-nephritis of children. Riegel here gives in detail a few examples out of many such cases which he has had the opportunity of examining. The first is that of a boy of seven, in whom albuminuria showed itself upon the nineteenth day from the commencement of the eruption. Up to that time the pulse had not shown any signs of tension, and the sphygmogram, which Riegel appends, was normal. Simultaneously with the appearance of the albumen, the vascular tension increased; and this tension became more and more marked, as the sphygmographic curves show, as the case progressed, the heart-action becoming at the same time slower. These conditions were maintained during the whole period that the nephritis lasted, and only disappeared when the affection subsided. In regard to the heart, it was found that, two days after the first appearance of albuminuria, the apex-beat became intensified, and on the sixth day percussion showed that the cardiac dulness was increased. The heart ultimately regained its normal size when the nephritis disappeared.

Several similar cases are recorded in this article; and from these and other observations Riegel draws the following conclusions:—

(1.) In most, if not in all, cases of scarlatinal glomerulo-nephritis, the signs of increased arterial tension become manifest at the commencement of the disease almost synchronously with the appearance of albumen in the urine.

(2.) The increased aortic tension is, when well marked, invariably accompanied with a slowing of the action of the heart. This is often accompanied by slight irregularity. In general, it may be said that the greater the tension, the slower is the action of the heart.

(3.) With the subsidence of the nephritis, the vascular tension falls and the pulse rate rises in a corresponding degree.

(4.) The cardiac hypertrophy is a secondary result of the increased arterial tension. It only commences after the tension has been for some time above normal. Clinically, the hypertrophy is only to be made out in cases in which the vascular tension is much increased. It is often to be detected within a few days of the commencement of the nephritis.

There is, however, another and very important point on which Riegel lays much stress in this article,—viz., that the degree and severity of the nephritis can be measured much more certainly by means of the arterial tension than by the quantity of albumen which the urine may contain. From a practical point of view, therefore, observations on the arterial tension are of considerable value in such cases.

In regard to the theory of how the vascular tension comes to be increased in cases of nephritis, Riegel's observations are of value. Traube's mechanical theory, which supposes that it is brought about by the closure of many of the renal vessels and the consequent diminution of the watery secretions, is hardly consistent with these observations, which show that the tension may be notably increased within twenty-four hours of the commencement of the nephritic process. It is hardly to be conceived that a hydræmic plethora sufficient to account for the vascular tension could be brought about in so short a period. Riegel also observed that, at the commencement at all events of the nephritis, the pulse was abnormally small, though high in tension; and this is just the opposite of what one would expect were Traube's theory true, for, in the same measure as the watery elimination was diminished and the hydræmic plethora increased, so would the blood-vessels from day to day become wider. The clinical observations of Riegel seem rather to indicate that the retention of urea and other urinary constituents causes a contraction of the arteries, and consequently an increased tension. As a result of this vascular contraction, the work of the heart is increased, and consequent dilatation and hypertrophy follow.

12. **Pellacani on the Action of certain Poisons on the Muscular Fibre of the Bladder.**—These observations were made by means of Mosso's plethysmographic method to determine the action of certain poisons upon the bladder. Some of these were found to cause contraction of that viscus by their action upon the central nervous system, while others acted directly upon the unstriped fibre of the bladder itself. To the former class belonged strychnine, which brought back the bladder reflex after it had been abolished by section of the lumbar cord. This action of strychnine is fully in accord with what might have been expected from our former knowledge of its action upon the spinal reflex centres. But besides this action, strychnine appears to have a local action upon the bladder itself, for, when the cord was entirely destroyed, it still exerted some influence on the bladder contraction.

Both ergotine and pilocarpine act distinctly on the smooth fibres of the bladder. In dogs in which section of the cervical cord had been performed, the intra-venous injection of ergotine raised the blood-pressure and caused at once contraction of the bladder. If pilocarpine be injected in place of ergotine, the bladder contractions become tetanic. The inhalation of nitrite of amyl acts exactly conversely, for there immediately follows a distinct dilatation of the bladder, which lasts for long. From these observations it appears that the smooth muscular fibre of the bladder acts in relation to these drugs very much as the smooth fibre does in other organs,—in the intestines, uterus, iris, and blood-vessels.

13. **Ellenberger on the Action of Pilocarpin on the Horse.**—The saliva which is produced by the action of pilocarpin, Ellenberger finds to differ materially from ordinary saliva, in that the former contains much less of the ferment which changes starch into sugar. This he thinks may be produced in one or more of three ways: by irritation of the cerebral secretory nerves alone, or by a simultaneous paralysis of the trophic nerve-fibres; or, finally, by the glands which produce little of the ferment (*i.e.*, the parotids) being excited more than the other salivary glands. The administration of larger doses Ellenberger found to give rise to increase of the intestinal movements and of the sections of the bowels, followed by frequent watery motions. Still larger doses produced a remarkable increase of the secretions of the respiratory tract, even in some cases to such an extent as to give rise to pulmonary œdema. This œdema, he thinks, may however have been to some extent due to cardiac weakness, which was a prominent symptom. Besides these actions, and the well-known action upon the skin, Ellenberger found further that pilocarpin in large doses increased the tissue change, the urea elimination increasing in twenty-four hours by so much as 50 grammes, and at the same time lowered the body weight.

J. GRAHAM BROWN.

## *REPORT ON MENTAL DISEASES.*

1. **Gunning and Styles.**—ON THE CARE OF THE INSANE IN THE UNITED STATES. *The Medico-Legal Journal*, vol. i. No. 3.
2. **Clark Bell.**—ON THE PROPOSED EXHUMATION OF SHAKSPERE'S BONES. *The Medico-Legal Journal*, vol. i. No. 3.
3. **Carlyle Johnstone.**—CASE OF EXOPHTHALMIC GOITRE WITH MANIA. *Reprinted from the Journal of Mental Science*, January, 1884.
4. **Anonymous.**—SUICIDE AND INSANITY. *The Broad Arrow*, 29th December, 1883.
5. **Sedan and Legrand du Saulle.**—L'ETHEROMANIE. (Intoxication with Ether.) *Annales Médico-Psychologiques*, November, 1883, p. 360.
6. **Passerini.**—UN CASO DI DEMONOMANIA CON ACCESSI ISTERO-EPILETTICI PERIODICI. (A Case of Demonomania with Periodical Attacks of Hystero-Epilepsy.) *Archivio Italiano per le Malatie Nervose*, anno xx. Fasc 4.
7. **Peretti.**—UEBER SPIEGELSCHRIFT. (On Mirror-Writing.) *Berliner Klinische Wochenschrift*, No. 31, xix. Jahrgang.

**1. Gunning and Styles on the Care of the Insane in the United States.**—We have received the third number of the *Medico-Legal Journal*, published under the auspices of the Medico-Legal Society of New York, whose object mainly is the improvement in the laws of the United States bearing on insanity.

In the debate which took place on 6th June, under the presidency of Mr. Clark Bell, the abuses met with in the treatment of lunatics in the States are denounced with characteristic plainness. As there are great varieties in the conditions of society over the wide territory of the United States, we must be cautious against believing that things are everywhere so bad as in the following case. Dr. Gunning said:—

"I was associated with an institution on the frontier. I will not mention the place, because the party who most required restraint was the superintendent himself. When I was quartered there, this matter interested me very much. My sympathies were constantly aroused and exercised. I found the patients in all kinds of harness, belts, wristlets, instruments resembling peach crates, and various styles of furniture of that sort, which, in some instances, rendered it impossible for them to turn over."

The following graphic passage shows that there are superintendents in America willing to make unusual sacrifices for their patients. In the course of his speech, Dr. Styles said:—

"The speakers have shown where the simple taking off of restraints and coming to a man and touching his self-respect has brought recovery. I know of a case of an army officer who, after twelve years' affliction, came finally to me. I am sorry to say that the Lord had given him great gifts only to be twisted into a demoniacal form. When confined so that he could not move a toe or a joint, that man would turn his head and chew up half a pillow before morning. I set my wits to work, and took him drives about, dressed in the best of clothes, gave him good cigars, and there was a change right off. He had his tantrums and his violent fits, and the attendants were afraid of him. I fortunately was blessed with a wife with a good deal of grit, and she would take the man riding in the carriage. He would yell along the road, and I have been told by farmers who would watch him, that they expected every moment that she would be torn to pieces. But she always managed him by the power of affectionate sympathy, and always brought him back safe. I recollect after she had been away to Europe he took it very hard, and when she returned, hearing that he wished to go to the chapel, she desired to take him, but I rather objected; but women have a way of prevailing, and I finally said, 'You can take the risk.' She took his arm, and walked him up to the front seat. I acknowledge he did make some remarks to her that were not relevant, but he was courteous and well-behaved. I finally said to his friends, 'You may take him out of the asylum, and I will give you the best male servant we have.' The man is now a well man, and has been for years. He called on me recently."

**2. Clark Bell on the Proposed Exhumation of Shakspere's Bones.**—In an editorial article on the non-success of Ingleby's proposal to lift Shakspere's remains in order to subject them to scientific examination, which aroused such a senseless clamour in the English press, the *American Journal* remarks:—"The intense interest in William Shakspere and all that synchronises with or affects him or his time, will, sooner or later, most undoubtedly culminate in just that—nay, must culminate in that act and no other.

"That England should have been ransacked for two hundred years, and be undergoing a re-ransacking to-day for personal Shaksperean remains, when, a few feet below the channel of society, at Stratford, lies perfectly undisturbed all that is structural of the man himself is certainly a slavish regard to a so-called curse, unique and a curiosity in nineteenth century procedures. But taking the curse for all it is worth, there is surely no prohibition against reverent examination.

"In continental countries they invariably scrape the bones of their saints, and display them permanently in glass cases in the cathedrals.

"Christopher Columbus does not, at any rate, rest in his grave as quietly as William Shakspere. The ashes of the great discoverer, first buried at Seville, have been moved about, till they finally lie in the Cathedral of Saint Domingo, and now they are to be turned out of their resting-place and enclosed in a plate-glass urn."

It appears that both the graves of Dante and Petrarch have been opened and their cranial capacity ascertained. The following table is taken from the paper of Nicolucci on the "Brain of Man, considered in its Anthropological Aspect," in *La Psichiatria*, *F.* 3, 1883. It gives the cubic capacity and the brain weight estimated or actually weighed of the following celebrated Italians:—

| | Age. | Brain Capacity. | Weight of Brain. |
|---|---|---|---|
| S. Ambrogio, Ecclesiastical Historian . | (?) | 1792 c.cm. | 1584 grammes |
| A. Volta, Natural Philosopher . . | 82 | 1745 " | 1542 " |
| F. Petrarca, Poet . . . . . . | 70 | 1602 " | 1417 " |
| A. Fusinieri, Natural Philosopher . | 78 | 1502 " | 1328 " |
| Dante Alighieri, Poet . . . . . | 56 | 1493 " | 1320 " |
| A. Scarpa, Surgeon . . . . . | 80 | 1455 " | 1287 " |
| U. Foscolo, Poet . . . . . . | 49 | 1426 " | 1261 " |

3. **Carlyle Johnstone's Case of Exophthalmic Goitre with Mania.**—This paper contains a very careful study of the case of a woman, aged thirty-three, who was admitted into the Royal Infirmary on the 24th of September, 1881, suffering from exophthalmic goitre. After being four weeks in the Infirmary, she became violently excited, and had to be transferred to the Royal Edinburgh Asylum on the 25th of November.

She had insane delusions, was restless, violent, and talked incessantly. For several weeks after her admission her mental condition was one of alternate tranquillity and violent excitement. After sleeping well for one or two nights, and spending a few days in a tolerably subdued manner, she would become sleepless, restless, and acutely excited. The intervals of quietude became more prolonged; but on the 10th March she fell down in an unconscious condition. A similar attack returned the day after, when she complained of a numb feeling in her left arm; and on 23rd July she had two seizures, in which she lost the power of the left arm and leg, and had a feeling of numbness all over the left side. The mental symptoms were believed to be improved; but the exophthalmos, the swelling of the thyroid, and the palpitations of the heart showed no signs of amelioration. The arm and leg became quite paralysed, and she died on the 19th of November, about a year after her admission to the Asylum.

"Psychical disturbances have always been noted in cases of exophthalmic goitre, and instances of actual insanity have been recorded. The irritability, capriciousness, emotional excitability, the hysterical manifestations, the alternations of excitement and depression characteristic of the disease, were all present in Mrs. G.'s case, and exaggerated to the extent of acute mania."

There seems to be some connection or correlation between disease or deficiency of the thyroid gland and disorder or deficiency of the functions of the brain, as shown not only in exophthalmic goitre, but in a more marked degree in cretinism and those cases of cretinoid idiocy described by Dr. Hilton Fagge and Dr. Fletcher Beach. In such idiots the thyroid gland is entirely wanting, and there are unusual collections of fat in the posterior triangles of the neck.

In Carlyle Johnstone's case, the thyroid was much enlarged, affected with true hypertrophy in one part, and wasting in another. The thymus gland was also found much enlarged. The orbits were found to be tightly packed with adipose tissue.

The lesions found in the brain accorded well with the symptoms observed during life. There was hyperæmia of the membranes, and some opacity of the arachnoid, especially on the right side. There was red softening of the cortical matter of the right hemisphere, with pink discoloration and mottling of the medullary tissue; and in one spot, about the size of a crown-piece, near the longitudinal fissure, on the ascending frontal and parietal convolutions, where the pia mater was found adherent, and the grey matter softened and broken down. In the left hemisphere there was injection of both the grey and white matter; but the structural changes were found, on microscopic examination, to go no farther than the vessels. Many of the cells of the superior cervical ganglia were more or less filled with a deep orange-coloured pigment, and many were slightly atrophied, with some increase in the proportion of the connective tissue.

4. **Anonymous.—Suicide and Insanity.**—The following paragraph, taken from the *Broad Arrow*, 29th December, 1883, seems worthy of the consideration of medical men:—"ESSEX REGIMENT (44TH).—A Wellington (Madras) correspondent writes: 'About 7 P.M. on the 17th November, a young man, a corporal named Richard Wilmore, of the 1st Battalion of this regiment (late 44th Foot), shot himself through the neck with his rifle. He was twenty-two years of age on the day of his death, and was not found until 11.30 the same evening. When found, he was sitting on a block of wood with the rifle between his knees, and the muzzle of the rifle in the hole in the neck caused by the bullet. On the following day, a native jury brought in a verdict of *felo de se*. This verdict has caused unpleasant feeling in the depot, as the friends of the deceased cannot get any of his property. He was, of course, not allowed a military funeral, and was buried after retreat (in darkness), and in unconsecrated ground. All respect that could be shown to him was given; every non-commissioned officer not on duty followed his corpse; altogether there were over 300 soldiers who followed him to his grave. His body was taken on a bullock truck to the grave, men not being allowed to carry it. It was a most impressive and solemn scene to see upwards of 300 soldiers, with bared heads and eyes red with weeping, standing round the open grave of him they had loved well. Many a heart-breaking sob broke through the night air, as Sergeant Alfred Woods, Royal Scotch Fusiliers, in a most impressive voice, beautifully read the sublime service of the Church. It would be impossible to portray even a tithe of the grief and sorrow so poignant in the hearts of those around

him. He was loved for his own sake, additionally loved for his kindness to his comrades. His colour-sergeant, a Roman Catholic, was at the grave side, holding a lamp, while the service was being read. This is an especially hard case, as this young fellow had always led a quiet, sober, and Christian life. He was a member, up to his death, of the I.O.G.T.'s, and was positively the last man we could suppose would do this rash act. He had had much trouble caused him by home affairs, and this, no doubt, preyed upon his mind. This, along with much sickness, impaired his reason, and no one here believes he was in sound sense at the time of death. The verdict of the jury is looked upon by the troops as a direct insult to the whole of the British army. Everybody here, from the highest to the lowest, feel very keenly the result of such an inquiry.'"

Though I possess no means of testing the correctness of the details of this touching narrative, it seems to call for at least sufficient comment to invite the attention of those able to make inquiry or give explanations. Assuming the occurrence to have passed as described: A young soldier serving in a foreign country, in bad health, and who had received distressing news from home, but whose condition and prospects seemed no worse otherwise than usual, suddenly destroys himself. His case is considered by a native jury, and as a verdict of suicide is given, he is buried not only without the customary religious rites, but under circumstances intended to convey insult and disgrace to the dead. As far as we know, such proceedings as burying suicides where two counties meet or in cross roads, or other attempts to make contumely pass beyond the grave, are now unknown in Scotland, where a Presbyterian clergyman would not refuse to attend the funeral of a suicide, much less to try to refuse him burial in the churchyard. In England, it is very common for a jury to bring in a verdict that the deceased had made away with himself in a fit of temporary insanity. Indeed, some people hold that the love of life is so powerful and pervading an instinct, that the mere fact that a man desires to quit the world implies a state of mind incompatible with sound reason. This is a view, however, which is not likely to be sustained by those acquainted with history and the varying faiths, customs, and opinions of men. If one really wishes to get away from the miseries of life, his religious beliefs or his views of a hereafter are the only considerations likely to have any hindering influence upon his mind; hence it is found that suicide is much commoner with some forms of belief than with others. In Buddhist countries like China and Japan, where the people believe in the transmigration of souls, suicide is often committed for trivial reasons. In Germany, it is much commoner with Protestants and Jews than with Catholics; and in strict Catholic countries like Spain and Ireland, it is rare. Suicide is steadily increasing in almost every country on the Continent, even in Russia. This is thought by some to be owing to the spread of materialistic views. According to Reclam, the increase in Prussia is about 30 per cent. during the last ten years. Morselli ("Il Suicidio, Milan," 1879, p. 395) tells us, that out of every thousand suicides, 300 in France, 333 in Prussia, 348 in Saxony, 470 in Belgium, 313 in Italy, and 400 in Würtemberg were returned as afflicted with insanity. We also learn from Majer that in Bavaria, where the statistics are carefully kept, it was found in 1878 that 39·9 per cent. of the suicides were owing to insanity (32·3 per cent. in 1879), and 11·5 per cent. to drunkenness. Suicide, too, is very common with soldiers. In 1879, there were 230 in the Prussian army. Dr. Clouston, in his "Clinical Lectures on Mental Diseases," which contain some sagacious remarks about suicide, observes that it is often committed near the commencement of an attack of melancholia. The presumption that this young soldier was insane seems to be strong enough to have saved his remains from treatment which caused so much discontent amongst his comrades. The paragraph does not inform us if the medical officers were consulted, and we hope that they were ready to give a well-considered opinion on the question. The East India Company made it imperative that all medical men entering their service should have had clinical instruction in the diagnosis and treatment of insanity. This wise provision ceased to have force after the amalgamation of their army with that of the Queen, but the case under consideration is a good argument among many others, that military surgeons should have that familiarity with insanity which can scarcely be learned save through frequent visits to an asylum.

5. **Sedan and Legrand du Saulle on Intoxication with Ether.**—Instances of the excessive use of ether, which are not so uncommon in America, are certainly rare in Europe. Dr. Sedan (*Gazette des Hopitaux*, 15th September, 1883) relates a case of etheromania, which is interesting from several points of view. A young man, who began to drink ether at ten years of age, while attending the classes at the Lycée of Toulouse, continued to take this stimulant without interruption. He obtained, at the same time, brilliant success at the University under its influence. For nine years, though of feeble constitution and of weakly appearance, he daily consumed, both by swallowing and by inhalation, quantities of ether, mounting from 100 to 1000 grammes. He rose during the night to procure ether from the chemist, and stole from his parents in order to pay for it. There was no cerebral disease, nor any intellectual disorder, and he died young, of heart disease. During the last year of his life he became much addicted to the abuse of morphia through subcutaneous injections, besides continuing to take ether. It appears from this case that intoxication by ether, as by morphia and alcohol, can in certain cases be prolonged and carried to a very high degree, without insanity or any apparent intellectual alteration.

Dr. Legrand du Saulle (in the *Annales d'Hygiène Publique*, Mai, 1882) gives the case of another victim to this species of dipsomania. The patient was twenty-nine years of age, unusually tall, but ill-proportioned, and of naturally feeble intelligence. He became addicted to the inhalation of sulphuric ether, squandered away 30,000 francs, and came into the hands of the police for ill-using his mother. It was made out that he was subject to impulsive mania, with an irresistible tendency to resort to stimulants. He was confined in several asylums, and then a long sea voyage was tried. When he returned, he was found to be more addicted to the inhalation of ether than before, and borrowed money from every one who would lend him any. He fell several times into the hands of the police, who brought him to Charenton. He was several times set free, but was again and again brought back to the asylum intoxicated with ether.

6. **Passerini on a Case of Demonomania.**—In the case described by Dr. Passerini, a young girl, deficient in intelligence, and easily depressed, was shut up by her mother in a room. Being in a state of great alarm and distress, she invoked the devil, promising her body and soul to him if she should be set free. The painful impression remained in her mind for several days, and one night she had dreadful visions of the devil. On entering a church she was seized with a hysterical attack, which lasted for about an hour. These hysterical attacks returned every day at the same hour, and were only dispelled by religious invocations. The girl really believed herself possessed by the devil,

called upon his help in difficulties, and often had nocturnal visions, accompanied by hallucinations of hearing and feeling. This case very well illustrates the numerous examples of diabolical possession so common in more credulous times.

7. **Peretti on Mirror-Writing.**—There is a tendency in some persons to write with the left hand, in a centrifugal direction from right to left, the result being what has been called mirror-writing (because it can be easily read by looking at the reflection in a mirror), or lithographic or letterpress writing. The first living pathologist who has paid attention to this abnormality seems to be Dr. Samuel Wilks, who has kindly sent me a pamphlet in which he refers to the subject. In the instances published by Buchwald and Erlenmeyer, the mirror-writing was performed by patients who commenced to write with the left hand because they had paralysis of the right arm. It seemed, therefore, doubtful whether the action was of a pathological or physiological character. In a paper on "Mirror-Writing and its Relation to Left-handedness and Cerebral Disease" (*Brain*, October, 1881), while I gave instances of this form of writing being unconsciously performed by imbeciles who had to use the left hand from paralysis of the right, I also showed, from experiments performed at two public schools, that there was a tendency in children who were left-handed, but otherwise normal, to resort to mirror-writing without being prompted; and that when a number of young children were told to write with their left hands, most of those who were naturally left-handed unconsciously wrote in mirror-writing. One boy who did not like being forced to use his right hand, when the teachers were not looking at him, used his left, and unconsciously reproduced mirror-writing, though an ordinary lithographed text-copy was before him. I have not noticed any further observations on the subject in English journals, save a brief allusion by Dr. Mercier, who in a "Study of a Case of Epilepsy" (in *Brain*, July, 1883, p. 201), says that the right hand of his patient "remained, after some severe convulsions, rigid, and, therefore, useless. On being asked to write with her left hand, she wrote fluently in mirror-writing. It appears, however, that she had learned this before."

Since my paper in *Brain* appeared, I have found that mirror-writing is not uncommon amongst left-handed children, either in schools for imbeciles or for ordinary children; but that the teachers, who are anxious to break the pupils from writing with their left hands, pay no attention to it, regarding it simply as a bad custom. My friend the schoolmaster, who made the first experiments, has since informed me that his female teacher complained that she had much trouble with a little boy who persisted in using his left hand and in writing in a way too that nobody could read. He asked her to let the boy write one specimen his own way, which was sent to me. In this there are ciphers, and ordinary letters with the boy's name at the end, all in mirror-writing.

Dr. Peretti has made similar experiments on a number of school-children in Germany. He found that out of 200 pupils, between seven and twelve years of age, 11 wrote both words and ciphers entirely in mirror-writing; besides this, 8 wrote all the ciphers, and 31 some of the ciphers in this form. Thus 50 children (= 25 per cent.) used mirror-writing in whole or in part. He found that of these 200 children, 25 were left-handed, and of the 50 who used mirror-writing, 12 were left-handed (= 24 per cent.); but of those who wrote normally only 8·6 per cent. were left-handed. From Peretti's own experiments, as well as those of Küthe, it seems that ciphers are more frequently traced in mirror-writing than ordinary text. In the experiments recorded by me all the children who unconsciously used mirror-writing were left-handed. It was the youngest children in the schools that were selected, and their average ages would no doubt be lower than those examined by Dr. Peretti. He correctly remarks that young children and uneducated persons are more apt to fall into mirror-writing.

Peretti is disposed to regard mirror-writing as a purely physiological action, the result of unconscious obedience to the tendency to symmetrical innervation. Tracing from right to left with the left hand is the exact correspondence to our ordinary writing with the right hand. The movement in each case is centrifugal, and the same muscles are used in the same direction. Leaving alone the question whether such movements are more easily performed than movements of abduction, it is clear enough that such symmetrical motions are easier with both hands than asymmetrical ones.

Peretti tells us that the Japanese, whose native characters run from left to right, when asked to write with the left hand, write from left to right; and he asks whether the man mentioned by me, who trying to write Hindustani words in Arabic characters with the left hand, unconsciously traced the letters from the left in mirror-writing, was a Hindustani or Arab? He was a Scotchman who had lived some years in India. The experiment was tried with two members of the Indian Civil Service; but they did not write the Arabic characters in mirror-writing. Granting the existence of this tendency to symmetrical innervation and muscular action, the question arises, What and where is the origin of the first impulse? In the hypothesis suggested by me the impulse was traced farther back than Dr. Peretti seems to think needful. "It may be asked," to quote the paper in *Brain*, "Is the image or impression, or change in the brain-tissue from which the image is formed in the mind of the mirror-writer, reversed like the negative of a photograph; or, if a double image be formed in the visual centre, one in the right hemisphere of the brain, and the other in the left, do the images lie to each other in opposite directions? We can thus conceive that the image on the left side of the brain being effaced through disease, the inverse image would remain in the right hemisphere, which would render the patient apt to trace the letters from right to left. Moreover, when one used the left hand to write, there would probably be a tendency to copy the inverse impression or image on the right side of the brain."

The fact that, in some cases, children have unconsciously produced mirror-writing as a correct copy of ordinary writing, seems to indicate that there was a derangement or reversal of the visual impression in the mind. Dr. Peretti believes that the tendency to use mirror-writing in dexter hemiplegia is owing to the mental obtuseness of the patient rendering him liker a young child, or an uneducated person, in whom the mental image of the characters is not so firmly fixed. He quotes the observations of Heidenhain and Grützner, that a woman, hypnotised on the left side of the body—which, it is assumed, implicates the right hemisphere—traced mirror-writing with the right hand as long as she was left alone, but in the usual way when expressly directed to do so. When hypnotised on the right side of the body, she wrote to the right. I cannot account for this on my hypothesis, nor indeed on any other, save by assuming that the woman had heard something about mirror-writing in palsy before she was hypnotised without correctly understanding it. Dr. Elliotson thought he had demonstrated the baseless localisations of phrenology by exciting emotions or actions corresponding to different parts touched upon the head of his mesmerised patient, who must have deceived him some way. In fact, as Dr. Peretti admits, the phenomena in persons hypnotised in one side are somewhat perplexing, since in Heidenhain's and Grützner's experiments as many persons were found to be affected with aphasia through the right side of the brain being acted upon as through the left.

Dr. Bianchi, of Naples, in a learned paper on "Changes in Handwriting in relation to Pathology," has given a resumé, with au able commentary on the different contributions to this subject, in which he has overlooked that of Dr. Peretti. As Bianchi's article has been translated by Dr. Workman for the *Alienist and Neurologist* (October, 1883), it is more accessible to English readers.

"The child," observes the learned author, "attentively fixes the model, in order to impress the image on his brain, and to constrain the muscles of his hand to follow the given direction; sometimes, instead, he does no more than pass with the ink over lines (letters) traced in pale colour on the paper, and thus he obtains that the unconscious impression of the motions executed by the hand is imprinted on the brain along with the image given by the sight; and by many times repeating the same impressions of images and muscular motions associated with the image, it happens at length that they obtain such close association that, in the adult, it is impossible to distinguish the two phases of the phenomenon. But the same impressions are always produced, and their imprint is preserved in the memory, becoming finally so profound that the practised man succeeds in writing with the eyes shut, as well as with them open, presenting at such times only some disorder in the distribution of the words in the horizontal lines, and the punctuation. Experiment, therefore, tells us that, for the act of writing, we require the impression of the image of the words, and further, the impression of the motions necessary for their formation. This last fact seems to have its seat in the left hemisphere prevalently, but a little in the right also, for it cannot be admitted that the binocular impression transmitted from the eyes, and producing equal images on the hemispheres, calls forth only on the left the muscular contractions necessary for the external impression of the image.

"In a hemiplegia of the right side it will therefore happen that the image, not calling forth, on the left hemisphere, any centrifugal motion in the muscles of the right hand, will oblige the extensor cellular groups in the sound right hemisphere to write from the left, because of the preserved remembrance of the muscular combination associated with the image of the word. Hence there will be an identical centrifugal motion, and the reversed lithographic writing."

WILLIAM W. IRELAND.

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## ORIGINAL ARTICLES.

### ON THE TREATMENT OF BURNS.

By JOHN DUNCAN, M.A., M.D., F.R.C.S.E.,
SURGEON TO THE ROYAL INFIRMARY; LECTURER ON SURGERY,
EDINBURGH SCHOOL OF MEDICINE.

I HAVE been in the habit, for a considerable time, of making a very pretty application of the antiseptic principle to wounds produced by the actual cautery. It consists in the immediate covering of the cauterised part with salicylic wool and flexile collodion. The result is that no suppuration takes place, and that the benefit derived from the cautery is as great as when the pain and discomfort of prolonged suppuration are permitted. Thus I cauterised the shoulder of a patient, Catharine W., aged thirty-six, who was suffering from strongly marked symptoms of "ulceration of the cartilage" of six months' duration. The skin was destroyed over a space three inches long by half-an-inch broad. Next morning the intense pain had disappeared, except on motion. The limb was then placed in a rigid apparatus for seven weeks. At the end of that time the wound was found to be completely healed, and the joint, though still somewhat stiff, was practically well.

A little attention is required in applying and maintaining the dressing for this purpose, as, indeed, in all cases where it is used for the antiseptic treatment of wounds. The wool ought to be teased out to an exceeding fineness at the edges, and laid on in successive thin layers, each of which is brushed with the collodion after its application. It then adheres with great tenacity, and is not apt, even with rough usage, to loosen at the edges. But, inasmuch as a very little displacement of the edge of the shield or any loss of adhesion would be fatal to the plan of treatment, it is well, in the first place, to extend the dressing largely beyond the margin of the sore; and also, from time to time, when it has to be long retained, to apply fresh wool and collodion to the margins.

With these precautions, success is certain. The cautery has destroyed all organisms, and the wool prevents further contamination. At the end, a dry shred represents the slough; not a drop of pus has been formed nor a throb of pain felt. I have been sometimes astonished at the length of time which a cautery-wound of the ordinary size takes to heal, considering the perfection of the method. I have removed the shield at various periods so as to witness the progress. At every stage —three, four, five, or six weeks—the wound is beautifully and typically healthy; but I have not found one cicatrised completely under six weeks. In one case, I took off the dressing after five weeks. The epithelium had crept half-way in from the margin. I then applied a fresh dressing of the same sort (the only occasion, as yet, on which I have done so), and as no pus formed, it was kept on for three weeks longer. Even then a space the size of a sixpence remained unhealed. The rapidity is, of course, influenced by the amount of swelling or tension of the part to which the cautery has been applied. I applied the cautery to a case of morbus coxæ, which had originated in an injury, in which the pain was very severe, and in which it seemed to me that the tendency to suppuration was slight—apparently, in short, one of those rare cases of hip-joint disease in which counter-irritation does good. The pain was relieved, and for weeks I used to exhibit it to the students of the clinique as an admirable example at once of the usefulness of the cautery and of the advantages of the dressing. At the end of seven weeks, I removed the wool and found the sore dry and fairly healthy, but not healing. An abscess had formed above Poupart's ligament, and the tension interfered with cicatrisation. Fortunately, two aspirations were sufficient to cure the abscess; and, after the first, the cautery wound quickly healed.

It is evident that under certain circumstances the same treatment may be applied to burns accidentally produced. This ought, indeed, to be the domestic treatment of burns in general, provided only they be in a part where the dressing can be maintained undisturbed. Even in burns of the first degree there is no dressing which gives so great ease, is so little cumbersome, and interferes so little with the usefulness of the limb. If there be vesication,—and it does not matter whether the blister be the result of a burn or scald, of friction as from rowing, or of the Spanish fly applied by the surgeon's orders,—the most perfect freedom from pain, and the most rapid healing, is brought about by pricking the blister, and when it is thoroughly evacuated, covering it with wool and collodion. And the same may be said of the more severe burns. But with blisters which have burst, or been ruffled, and with the higher degrees, success is only certain if the application be immediate. Otherwise organisms have insinuated themselves under the cuticle, or been rubbed into the charred part from the friction of the clothing. Failures occur, and suppuration arises under the shield precisely in proportion to the time which has elapsed between the injury and the treatment; and when it becomes necessary to use lotions and scrubbing to render the part aseptic, I have found it better on the whole to use a dressing which is more easily removed. But with these limitations I know of no better method of treatment for burns, or indeed for minor wounds in general, than that which I have here advocated.

## MODELLING AS A MEANS OF CLASS ILLUSTRATION.

THERE is scarcely any subject in the medical curriculum whose explanation cannot in many places be simplified in a most surprising way by the use of rough clay models. These should be made before the class by the teacher himself, as he gives his verbal description. Useful in many directions, this method is especially so when allusion is made to development; and where the changes of a plastic substance are described in words, how much easier it becomes for students to follow these changes when they are illustrated by the alterations in form taking place in a mass of clay before them. It does not require any special skill as a modeller, nor need the model be anything but of the roughest sort. So long as the student is enabled to grasp the idea of what is meant he is put in the position to follow a much more elaborate description than he could otherwise do. Even the best of diagrams often leave a beginner groping in the dark from his not understanding exactly what view the diagram is meant to give, while a rough model giving the concrete idea might make it plain at a glance. To take only one instance. I have found the greatest assistance in using clay to model out the described changes in form in the development of the brain. I could thus realise the process to myself in a way that no amount of reading could have enabled me to do, never having been able to follow it out completely on specimens. When I came to explain it to my class I found the method proportionately easy, for not only were my own conceptions thus made more definite, and the verbal descriptions rendered therefore clearer; but when this was accompanied by a demonstration of the flexures actually taking place, and the parts enlarging before their eyes, the students often expressed surprise that they thus found a matter so easy which had been previously, to many who had really tried it, an almost hopeless puzzle. In histology the method is likewise calculated to be of the greatest service in illustrating the various forms of corpuscles, &c., and has already been for some time used for this purpose by Professor Stirling of Aberdeen. It would be easy to multiply instances of the possible applications of the method, but these must be left to the ingenuity and requirements of each individual teacher.

To large classes modelling in clay will be found of special value, even in addition to the occasions when its use is indicated for small ones.

A very useful form of clay is made by mixing dry pipe-clay with coarse glycerine (for cheapness' sake), instead of with water. This will remain always ready for use, and may be laid aside for months, and taken up at a moment's notice. I found that with very little practice I could model with my fingers sufficiently well for all purposes—in fact, scarcely more skill is required than is brought into play by boys at school amusing themselves with dough caricatures of their friends.

Charles W. Cathcart.

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# MEETING OF SOCIETY.

## THE MEDICO-CHIRURGICAL SOCIETY.

THE Medico-Chirurgical Society of Edinburgh met on the evening of Wednesday, 6th current: Dr. Littlejohn, President, in the chair.

An interesting case of Paraffin Eczema was exhibited by Dr. Hodsdon. The patient, a man of middle age, had, he said, been sent in to Dr. Duncan by Dr. Longmuir of Bathgate, and had been employed in paraffin works for about two years. Beginning on the back of the hands, the affection had progressed along the backs of the arms, where it took the form of horny outgrowths. Some of these horns had fallen off, leaving somewhat deep ulcerations. This was not a common disease in the district, and Dr. Allan Jamieson, who had examined the man, had seen nothing of the kind before, nor was any figure of it described in the French books that he (Dr. Hodsdon) knew of. In answer to the President, the patient said he had not seen anything of the kind in the other workers, and knew of nothing to account for it in his case. Mr. Joseph Bell observed that the condition seemed to him to stand midway between cases of paraffin acne and paraffin epithelioma, with which he had previously had to do. Dr. Allan Jamieson next exhibited, in a young man, a case of Pityriasis Versicolor, or rather a combination of that condition with psoriasis, which was seen on the elbow, but was best marked on the knee. The patient had, about three weeks before, noticed some spots appearing on his chest, and these had gradually spread there and over his back. At first he (Dr. Jamieson) thought it was a case of lichen marginatus, but the microscope had since revealed large quantities of the characteristic mycelium, and spores of the tinea versicolor.

The only pathological specimens exhibited were in connection with a paper on a case of Addison's Disease occurring at an unusually early age, by Dr. Henry M. Church, which was last read, and in regard to which an interesting suggestion with regard to the possible pathology of the condition was made by Dr. Byrom Bramwell. Dr. Church's patient he stated to be a girl, whose family history was good, except that a maternal uncle had died of phthisis, and that her mother had a well-marked bronzing of the forehead, though otherwise quite well. The first symptoms of illness in the girl had begun about twelve months before her death, but they had been little beyond a slight discoloration, and she had been able to continue at school till comparatively lately. Latterly she had headache and constant pain. The post-mortem showed both kidneys to be about normal, but both capsules to be enlarged—the left much more so than the right, being about a third of the size of the kidney itself and closely adherent to it, though its substance did not pass into that of the kidney. The right capsule was readily separable from the kidney, and was separated by fatty tissue. On section, the capsules presented an opaque homogeneous appearance except at one part, where now a fawn-coloured, and at first brown-coloured, spot was to be seen, probably a hæmorrhage. Dr. Phillip, assistant to Professor Grainger Stewart, had prepared four sections which were laid before the Society, and which showed the microscopical structure of the capsular tissue; and, among other things, abundant cells imbedded in the reticulated structure of the spot just mentioned—the cells being probably altered blood-corpuscles, and true giant cells in the fibrous stroma. Dr. Webster, who had been present at the post-mortem, said he had previously seen the enlarged capsules of Addison's disease in two women, but that the capsules here were fully twice as large as those in the two other cases. The larynx in this case was quite as congested and bronzed as the skin. Dr. Bramwell said he was desirous of knowing whether the condition of the nerves in the neighbourhood of the capsules had been particularly observed. This was a point of extreme importance, because it had now been proved in several cases that the branches of the sympathetic in the neighbourhood were inflamed and enlarged. It was a very curious fact that there was only one disease of the capsules, and that the tubercular, which produced this bronzed condition; and they sometimes got bronzing in phthisis, where the capsules were not at all affected. In fact, he had seen more than one case of phthisis which had, on that account, been mistaken for this disease. It came to be a question whether the tubercle bacillus,

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or some other constituent of the scrofulous condition did not produce a particular form of irritation of the nerve-trunks, which caused this condition. Dr. Church, in reply, said that the condition of the nerves had not been specially observed; but that there was no adhesion of the capsules to the neighbouring parts.

Dr. W. Craig read his promised paper on the history of the case of Malformation in a Male Child, in which the rectum ended in the membranous portion of the urethra, and the fæces were passed through the penis. There had, he said, been nothing unusual in the birth or afterwards, till, on the second day, it was noticed that the fæces were being passed through the penis, with much pain to the child. Mr. Joseph Bell, who had been at once called in, made an exploratory perineal incision of about an inch in depth without meeting the bowel; and, after an interval, carried the exploration somewhat further, but without finding any bulging. He had accordingly not felt justified in attempting further interference, and the child died. The post-mortem, which was conducted by Dr. Maxwell Ross and Dr. Mackay, showed that above the pelvis the parts were normal and healthy; but that there was a want of development of the third part of the rectum, and that between the somewhat dilated end of the second part and the membranous portion of the urethra there was a narrow tube. There was an external indentation at the part where the anus should have been. The condition, he said, was an exceedingly rare one; and, commenting upon the dicta of Mr. Holmes in his book, Dr. Craig stated that he had no hesitation in saying that Mr. Bell's treatment had been the right one, and that colotomy would have been unjustifiable. As a section of the parts had been made in the middle line, he was enabled to present a specimen of the condition to the Museums of the University and of the Royal College of Surgeons. Mr. Bell, observing upon his share in the case, said he had little doubt that the child would have died in the operation of colotomy, and therefore preferred to leave it alone, especially as Dr. Craig and himself had had little encouragement from the parents. With regard to the deformity itself, this kind of case occurred more frequently in the female child, and the opening was generally into the vagina. He must have operated himself in about a dozen such cases, and the operation was simple enough. The principle was to introduce a bent bougie into the opening, and make it enter the rectum, and then to cut down upon the rectal pouch, bring down the bowel, and stitch it to the skin. The trouble was to prevent succeeding stricture. There was another class of cases, in both male and female, in which the fæces did not pass at all; and he had now operated in about twenty of these cases. He had almost always succeeded in finding the rectum by cutting boldly on,—not always on one day. But, although one succeeded in this, and in perhaps prolonging life for a short time, few of those cases reached adult life. They were badly formed children in other ways. Professor Simpson agreed with Mr. Bell in saying that these cases occurred most frequently in females, for the reason that all malformations occurred most frequently in them than in males. He also agreed with Dr. Craig as to the dicta of Mr. Holmes, who, he said, should remember that, in the infant, access to the pelvic organs was by no means so easy as in the adult, as the urinary organs were in the infant situated unusually high up, and, in a case of this kind, quite level with the pelvis. Dr. Craig, however, would, if he searched gynecological rather than purely surgical works, find precisely similar cases to this one. Dr. Maxwell Ross gave a summary of the cases detailed in the paper of Mr. Harrison Cripps, in the St. Bartholomew's Hospital Reports, which contained the records of some six successful operations on the male child in cases apparently similar to Dr. Craig's. To this, Dr. Craig replied that the results in these apparently successful cases depended to a very great extent on the development of the rectum. If, in this case, the third part of the rectum had been developed, he had no doubt Mr. Bell would have been successful in his operation.

Dr. Affleck read some valuable and interesting clinical observations on a case of Perforating Gastric Ulcer. The patient was a policeman, aged twenty-one, who was taken to the Royal Infirmary about seven o'clock on the morning of 4th May last, for the sudden occurrence of a violent pain in the abdomen,—the pain being so violent that he had to be taken to the Hospital on a stretcher, and who died, with the symptoms of extreme collapse, about nine hours after admission. The points in the case dealt with as of special interest were—(1) the occurrence of the perforating ulcer in a man, the cases being most frequent in women; (2) its occurrence in a marked form in a person in a high degree of health, and who had not previously complained in any way; (3) the healthy character of the rest of the viscus, pointing to some limited nutrition change; (4) the occurrence of the ulcer at the back of the stomach, in the greater curvature, and towards the cardiac end, as against the lesser curvature and the pyloric end, where it was most usually found; and (5) the age of the patient, the mean age in men being forty-two as against twenty-seven in the female. Dr. Shand gave the history of two cases of perforating ulcer in the stomach in females—both domestic servants. There had been the same symptoms of collapse and sudden termination, but the situation of the ulcers was more normal. Both patients had been otherwise healthy and well nourished. Dr. Bramwell emphasised the importance of the comparative diagnosis between this condition and that of acute irritant poisoning, from the medico-legal point of view, instancing two cases in Newcastle which he had been asked to see on this account. In females, they had to keep in view the possibility of the rupture of an extra-uterine cyst, as, in one case with which he had had to do, of a fallopian gestation. Professor Simpson laid stress on this class of cases from the point of view of prognosis, illustrating his point by reference to a recent case to which he had been called in Fife. He at the same time suggested the possible propriety of abdominal incision, with a view to washing out the contents in this class of cases. In this suggestion Mr. Bell concurred, observing that if he were unfortunately in the position described by Dr. Affleck, he should send for some of his surgical friends and ask them to give him chloroform, and see what was going on inside. Dr. Affleck, in his reply, differed from Mr. Bell, saying that he should rather take his chance of a possible recovery, which they knew sometimes did occur, than face the added risks of such an operation.

Going back upon the pathological specimen exhibited by Mr. Miller at the previous meeting in connection with an amputation at the shoulder joint for injury and osteo-myelitis, it should be noted that the operation performed was Spence's and not Syme's, as previously stated.

F. A. MACIVER.

## REPORT ON SURGERY.

1. **Davies Colley.**—ACUTE GONORRHŒAL RHEUMATISM. Guy's Hospital Reports for 1882.
2. **Paul, F. T.**—A CLASSIFICATION OF THE NEW GROWTHS OF THE URINARY SYSTEM (BLADDER, PROSTATE, AND KIDNEY). *British Medical Journal*, 12th January, 1884.

3. **Hahn, E.**—Zur Behandlung der Syphilitischen Mastdarm-Ulceration durch die Colotomie. (On the Treatment of Syphilitic Ulceration of the Rectum by Colotomy.) *Von Langenbeck's Archives*, August, 1883.

1. **Davies Colley on Gonorrhœal Rheumatism.**—In the Forty-first Vol. of Guy's Hospital Reports for 1882, J. N. C. Davies Colley, M.C., reviews the principal clinical features of this misnamed disease, and illustrates these by short details of six cases which have been more or less under his own observation, and are supplementary to a former series of nine published in the June number of the *Obstetrical Journal*, 1878.

His experience is singular, in so far as he has met with it more often in the female than the male. Three of the six recorded are women.

The statements made to show the alliance of this disease with acute rheumatism in the occasional association of cardiac complications only demonstrate the fact that rheumatic individuals are liable, like other people, to gonorrhœa and its occasional malign results.

In this paper, there is no attempt made to solve the pathology, nor is there any addition to our knowledge of the morbid anatomy of the disease. With regard to the treatment of the affection, he has proved the inefficacy of the anti-rheumatic remedies, and has found that rest of the patient in bed and fixation of the limb the first essential, combined with warm anodyne lotions or the application of an ointment composed of ung. hydr. co. with ext. belladonna in order to relieve pain. When the more acute symptoms have subsided, the presence of a Martin's bandage is serviceable in reducing the swelling, while, at the same time, it lends a grateful support to the relaxed tissues. The speedy arrest of the purulent discharge which has caused the disease is very properly regarded as an important indication. MM. Duplay and Brun's suggestion of the application of a plaster-of-paris bandage to the swollen and tender joint is highly commended, but has not been tried by the writer. In the later stages, shampooing and passive movement are enjoined in order to avert the tendency to ankylosis which is apt to ensue.

The division of the cases into synovial, arthritic, and general fibrous seem to have little clinical importance, as it is unaccompanied by any variety of treatment.

P. H. Maclaren.

2. **Paul on New Growths of the Urinary System.**—One could hardly wish to have a better example of the value of the "collective investigation" method of inquiry than is given in this excellent paper by Mr. Paul. After several months' work, and although aided by contributions from many eminent pathologists and surgeons, he tells us that he is still unable to be certain in many particulars as to the classification and nature of the tumours. We can form from this an idea of how much such work was needed, and may look forward with the more confidence to the results of Mr. Paul's continued labours in the same direction.

The generally accepted classification of new growths in the regions indicated is given as follows :—

*Tumours of the Bladder.*—Fibrous and mucous polypi-sarcoma; villous tumour; scirrhus, encephaloid, and epithelial cancer.

*Tumours of the Prostate.*—Hypertrophy; sarcoma; encephaloid and scirrhus cancer.

*Tumours of the Kidney.*—Cavernous tumour; cysts; sarcoma; encephaloid cancer.

Contrasted with this he gives us the following as a more minute and definite classification :—

| | Bladder. | Prostate. | Kidney (Congenital). | Kidney (Adult). |
|---|---|---|---|---|
| *Myoma*, | Intra-mural,<br>Polypoid, | ...<br>... | ...<br>... | ...<br>... |
| *Fibroma*, | Intra-mural,<br>Polypoid, | ...<br>... | ...<br>... | ...<br>... |
| *Myxoma*, | Intra-mural,<br>Polypoid, | ...<br>... | ...<br>... | ...<br>... |
| *Sarcoma*, | Round-celled,<br>Other varieties, | Round-celled,<br>Spindle-celled,<br>Lympho-sarcoma, | Round-celled,<br>Fibro-sarcoma,<br>Striped myo-sarcoma,<br>Adeno-sarcoma, | Round-celled.<br>Other varieties. |
| *Adenoma*, | ... | Hypertrophy, | ... | Cystic.<br>Tubular. |
| *Dermoid Tumour*, | ... | ... | Present. | ... |
| *Papilloma*, | (Villous Tumour), | ... | ... | ... |
| *Carcinoma*, | Epithelioma,<br>Colloid, | Acinous,<br>Tubular,<br>Colloid, | ...<br>...<br>... | (*a.*) *Pelvic*, (Bladder).<br>(*b.*) *Glandular*, Cystic. Tubular. |
| *Cysts*, | (Accidental), | ... | Present, | Cysts, and Cavernous Tumours. |

On examining the narrated details of the above list, we find that Mr. Paul has not met with any specimens of myoma of the bladder, which he considers very rare. The fibromata and myxomata of this viscus are the tumours generally recognised as polypi. The difference between polypi and papillomata, when they occur in their typical form, is well given as follows:—"A true papilloma should involve only that portion of the sub-epithelium connective tissue which is essential to the vitality of the epithelium, and which in a papillary surface is contained within the limits of the papillæ; while a polypus originates deeper down, and only distends those structures over its surface, or involves them in a secondary degree."

Sarcoma of the bladder is considered very rare, and out of the six sent in as of this nature, only one has been accepted as an undoubted example.

The form which carcinoma takes in the bladder is given as that of epithelioma without squameous evolution, tubular bladder-epithelioma, or scirrhus carcinoma, all synonyms for the same thing. The latter term, however, Mr. Paul does not like.

The prostate is considered essentially glandular rather than muscular in its relations to new growths. Only one case of pure myoma has been recorded, adeno-myomata being the common form of prostatic growth. This includes both ordinary hypertrophy and the special tumours.

Sarcoma of the prostate in one or other of the forms mentioned in the table is considered the commonest form of malignant growth. The carcinomata are to be classed as acinous or tubular, rather than scirrhus or encephaloid, and colloid; the latter being held to have its source in the mucous-secreting epithelium of the gland.

*Kidney.*—As will be seen in Mr. Paul's table, he classifies tumours according as they occur congenitally, or in the adult kidney. Of the former, the commonest seem to be round-celled; two well-marked examples of adeno-sarcoma are narrated; and although there were five cases of myo-sarcoma, they are not considered to be primary affections of the kidney, but to have merely infiltrated it from surrounding parts. No cases of dermoid tumours were noted.

Contrasted with the comparative frequency of sarcoma in the fœtal kidney, this form of malignancy is not so common in adults, but when present seems to be generally in the small round-celled kind. Mr. Paul considers that adenoma of the kidney is commoner than is usually supposed.

The carcinomata of the kidney are to be sub-divided into those of the pelvis and those of the kidney substance proper. The former are said to resemble those of the bladder, and the latter are again divided into tubular and cystic. On this subject, however, our author considers that more information is still wanted before the matter can be cleared up, and we trust that before very long it will be placed in our hands.

**3. Hahn on Colotomy in Syphilitic Ulceration of the Rectum.**—The principle of giving rest to inflamed tissues is one which finds an ever widening scope for its fulfilment, as the facilities for operation are increased by the improvements of modern surgery. In this paper we have antiseptic surgery applied to a new operation for colotomy devised for the relief of a most obstinate and often fatal form of ulceration.

As regards the causation of the "so-called syphilitic ulceration of the rectum," Dr. Hahn does not feel able to speak positively. It occurs "almost exclusively in women, and very often in syphilitic women," although sometimes in cases where "no trace of syphilis was to be found." If syphilitic, Dr. Hahn thinks it is still uncertain whether it is to be referred to the secondary or tertiary period, whether the result of mucus patches, condylomata, or gummata; while possibly it may be a result of gonorrhœal poison or from infection from a soft sore. V. Bærensprung and Fournier consider syphilis to be the cause, and think that the starting point may be at any stage of the disease, from mucus patches to gummata and in the tertiary period Fournier distinguishes gummatous ulcers from those connected with ano-rectal syphiloma. On the other hand, Gosselin and others bring forward arguments in favour of this ulceration being non-syphilitic. Virchow cannot speak definitely from the point of view of pathological anatomy, not having had sufficient opportunities for observation.

Dr. Hahn's experience with the ordinary forms of treatment, local and general, has been very unsatisfactory. In a large proportion of these cases, in spite of every care, "the discharge of pus continued, the ulceration did not heal, and the patients sank a little more slowly but just as surely, as in cancer of the rectum." At the end the immediate cause of death was sometimes exhaustion with extensive amyloid degeneration, sometimes peritonitis from perforation, and sometimes pyæmia and septicæmia.

The patient on whom this method of treatment was first tried was a prostitute, twenty-five years of age. In consequence of profuse discharge from one of these rectal ulcers she became extremely reduced and emaciated, and as no local or general treatment was of any service, it was resolved to try the effect of colotomy in order to thoroughly rest the diseased surfaces. Left anterior colotomy was performed with excellent result, the discharge soon ceased entirely, the patiently rapidly regained weight, and her colour and freshness returned. Two years afterwards she applied to have the artificial anus closed up; but unfortunately died of pyæmia after the operation. The encouraging effect on the ulceration and discharge in this extreme case has led Dr. Hahn to perform the same operation on eight other patients all affected in a similar way. Of these, two were alive and doing well when the account was written, three had died of inter-current diseases in from eight months to two and a-half years after the operation, this having been in itself successful, and two had died a few days after the operation, one of inanition, the operation having been undertaken too late, and the other of peritonitis as a result of a mistake in the operation.

The method of operating is as follows:—The day before the operation the patients receive a purge, and a few hours before, the intestine is washed out. The operation is performed in two parts. First stage: The patient having been chloroformed, and the surrounding skin thoroughly disinfected, an incision 5 or 6cmt. (2 to 2½ in.) long is made, parallel to, and about ½ctm. ($\frac{3}{16}$ in.) above Poupart's ligament, the centre of the incision being opposite the anterior superior spine. The oblique and transverse muscles are then divided to the same extent as the skin, and all the small vessels tied. Next the fascia transversalis and peritoneum are divided, and the parietal layer of peritoneum is sewn, with eight or ten separate catgut stitches, to the skin. In doing this the needle is carried from without through all the textures to the peritoneum, which is then drawn outwards so as to line the whole wound. The colon, or its sigmoid flexure, having then been drawn into the wound with the finger and thumb, the wall of the gut is sewn to the parietal layer of peritoneum which now lines the wound. This is in order to bring somewhat broad surfaces of visceral and parietal peritoneum together so as to insure a firmer union between them: the sewing is conducted in the following way: A fine slightly curved needle, threaded with carbolised silk, is passed between the peritoneal and muscular coats of the gut, and thence through the parietal layer of peritoneum, ½ctm. from the edge of the wound to the skin; the thread is then lightly knotted, and the ends left about 7ctm. long; seven or eight

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similar stitches are put in, so as thus to unite the two layers of peritoneum with a surface of about a ½ctm. broad. The reason for leaving the ends of the thread long, is that when the intestine is opened at the second stage of the operation, six or seven days after the first, the granulations which then cover the whole wound make it difficult to distinguish the intestine from the surrounding parts, and without some such guide as the threads afford, there would be a risk of opening into the peritoneal cavity again in the endeavour to find and cut through the wall of the colon. This was the cause of the death from peritonitis in one of the two cases in which the operation was not successful.

When the intestine is to be opened after the formation of the granulations, the threads are drawn lightly asunder, and the wall of the gut divided between them; if need be, two fine hooks may be used to draw up the wall of the intestine before dividing it. In a few days treatment may be begun by washing out the peripheral end of the intestine through the wound. Prolapse of the intestine when the patient gets up is more apt to occur after this operation than after posterior colotomy. This is to be avoided by keeping the wound small, and by providing a well-fitting plug to block up the opening.

The advantages which Dr. Hahn claims for anterior over posterior colotomy, are—

(1.) The possibility for the patient to keep the part clean, and to wash out the lower end of the intestine herself.

(2.) The possibility of carrying out the operation with greater certainty.

(3.) The possibility, by making two stages of the operation, to keep the wound perfectly antiseptic until after the granulations have formed.

In those rare cases in which it is necessary to open the intestine above the descending colon, Dr. Hahn recommends "median colotomy," by which the transverse colon is reached through the linea alba. An account of this operation, however, we shall leave for future notice.

Charles W. Cathcart.

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# *REPORT ON OPHTHALMOLOGY.*

## *RECENT PAPERS.*

1. **Galezowski.**—Des Troubles visuels consecutifs à l'Abus du Tabac. (Visual Defects due to Abuse of Tobacco.) *Recueil d'Ophthal.*, Nov. 1883, p. 677.
2. **Zehender, W.**—Atresie dreier Thränenpunkte. (Occlusion of Three of the Puncta Lachrymalia.) *Klin. Monatsbl. für Augenheilk.*, Dec. 1883, p. 520.
3. **Schweigger, C.**—Fälle von Euschütterung des Sehnerven. (Concussion of the Optic Nerve.) *Archiv. für Augenheilk.*, xiii. 2-3, p. 244.
4. **Schweigger, C.**—Eine seltene Conjunctival-Erkrankung. (A Rare Form of Conjunctivitis.) *Archiv. für Augenheilk.*, xiii. 2-3, p. 247.
5. **Nieden, A.**—Zwei Fälle von Neuroparalytischer Hornhautentzündung. (Two Cases of Paralytic Keratitis.) *Archiv. für Augenheilk.*, xiii. 2-3, p. 249.

6. **Landesberg.**—Zur Streckung des Sehnerven. (Stretching of the Optic Nerve.) *Archiv. für Ophthalmol.* (v. Græfe's), xxix. 4, p. 101.

1. **Galezowski on Tobacco-Amblyopia.**—The author, in giving the results of his experience of this affection, lays stress on contraction of the pupil as an important symptom, besides the more generally known failure of central vision and "colour-scotoma." He states also that prolonged exposure to an atmosphere charged with tobacco-smoke may produce, even in non-smokers, the characteristic effects of the drug, both as regards the eyes and the general health. He insists, therefore, on the special importance of good ventilation in places where much tobacco is consumed.

2. **W. Zehender on Atresia of Three of the Puncta.**—A child five years old had suffered since infancy from epiphora of the right eye. On examination both puncta in the right eye, and the lower in the left, were found to be occluded by a thin membrane. They were opened with a cataract-needle, when a probe was easily passed through them into the canaliculi. The cure was complete. In this and another precisely similar case previously reported by Zehender, it is remarkable that the upper punctum in the left eye was able completely to carry away the tears though the lower was quite occluded.

3. **C. Schweigger on Concussion of the Optic Nerve.**—Three cases are reported where blows on the head were followed by total blindness of one eye, without any injury to the globe or visible change in the fundus, and without any signs of fracture of the skull or intracranial lesion. In all three cases the vision returned, and was ultimately from $\frac{1}{4}$ to $\frac{1}{7}$ of the normal, while the disc became paler, and remained in a condition of partial atrophy. Wound of the nerve was excluded in each of the three cases by the nature of the injury; and in two fracture of the skull also, while in the third it was very improbable. The author localises the lesion therefore in the optic nerve at the o. foramen, and conjectures that it was probably a hæmorrhage.

4. **C. Schweigger on a Rare Form of Conjunctivitis.**—The patient when first seen had suffered for some months from an inflammation of both eyes, which had caused cicatricial adhesions between the ocular and lower palpebral conjunctiva. Granular conjunctivitis was excluded by the short duration of the disease, and the normal condition of the upper lids. A few months later the author was called suddenly to see the patient, and found a large bulla on the ocular conjunctiva, partly concealed by the lower lid, which resulted in the formation of a cicatricial band like those already existing. The patient had suffered previously from a similar form of inflammation in the buccal mucous membrane, though never in the skin. The author considers it allied to pemphigus, and thinks cases that have been described as idiopathic contraction of the conjunctiva may have had a similar origin.

5. **Nieden on Paralytic Keratitis.**—The first patient received a wound from a knife in the left parietal region, which was followed by loss of power of the right arm and leg, aphasic symptoms, and complete paralysis of the left external rectus. All these symptoms had disappeared but the last, when the patient came nine months after the injury to request that an attempt should be made

to remedy the internal strabismus, which much annoyed him. As the eye appeared in all other respects normal, the rectus internus was divided, and the rectus externus drawn forward. The wounds healed rapidly; and even on the second day the patient could move the eye a short distance outwards. On the sixth day, however, a superficial central corneal ulceration was noticed, which gradually spread, in spite of all the usual methods of treatment, and persisted for three weeks without improvement. Complete absence of pain, lachrymation and photophobia, were observed, and on examination it was found that the area of distribution of the first division of the fifth nerve, with part of that of the other divisions, was completely anæsthetic. The patient stated that this had been the case ever since his injury. Daily injections of strychnia into the temple were now begun, and the ulcer at once began to improve. In twelve days it was healed, leaving only a slight nebula at the central part; and the anæsthetic area had recovered imperfect sensation.

The second case was one of fracture of the base of the skull, which was recovered from with the exception of a certain change in the patient's disposition, paresis of the left facial and abducens nerves, and partial anæsthesia of the trigeminal. Ten weeks after the injury, ulceration began on the left cornea, and, spreading in spite of various methods of treatment, had become so deep when first seen by Nieden, three weeks later, that spontaneous perforation occurred during the following night. This happened again three times during the course of treatment, which was similar to that in the first case. In spite of an intercurrent attack of erysipelas, the ulcer was healed in less than a month, leaving a small central leucoma, and the anæsthesia was somewhat diminished.

In the first case, the good effect of the treatment employed seems remarkably clear. In the second, however, the perforation may have contributed to the result, though, as the author remarks, perforation in anæsthetic cases is usually the precursor of atrophy of the globe. In the first case, it is also interesting to observe that it was only when the anæsthetic cornea was brought from the inner angle, where it was completely under cover, to the centre of the opening of the lids that ulceration appeared; so that anæsthesia alone, without exposure to the air, &c., was not enough to initiate the process. Nieden does not think it necessary to assume special trophic nerves to the cornea to account for the ulceration in his own cases, but does not pronounce on the question whether they exist or not,—a question that has been much discussed in connection with this form of corneal ulceration.

6. **Landesberg on Optic Nerve-Stretching.**—The success of nerve-stretching in some cases of spinal disease has led to its trial in atrophy of the optic nerve. As the author points out, it is never likely to be employed except as a last resort, so that at best no great measure of success can be expected from it. It is performed by passing a strabismus-hook round the nerve from the inner side of the globe, with or without division of the internal rectus muscle, and pulling upon it. Of the author's 21 cases, 11 showed no improvement; 6 improved for a short time but relapsed; 4 had retained their better vision till last seen (about six months after the operation), one of them till his death from advanced spinal disease. No bad result followed in any of the cases; in one the improvement was considerable; the distance at which fingers could be counted increased from one foot to eleven feet.

R. A. Lundie.

# REPORT ON OTOLOGY.

## RECENT PAPERS.

1. **Magnus, A.**—Ein Fall von Vollstandiger, Vorübergehender Taubheit. (A Case of Complete Transitory Deafness.) *Archiv. für Obrenheilkunde*, December, 1883.
2. **Küpper.**—Mittheilungen aus der Praxis. (Clinical Observations.) *Archiv. für Obrenheilkunde*, December, 1883.
3. **Brunner, G.**—The Etiology and Symptomatology of Autophony. *Archives of Otology*, vol. xii., September and December, 1883.
4. **Moos.**—Neuropathological Communications. *Archives of Otology*, September and December, 1883.
5. **Tangeman.**—Reproduction of the Membrana Tympani by Skin-grafting. *Archives of Otology*, September and December, 1883.

1. **Magnus on a Case of Complete Transitory Deafness.**—In this paper the author describes the case of a boy, aged nine, who became deaf without any special exciting cause. At first the hearing was only impaired, but eventually seemed to be absolutely lost. Although the deafness was apparently not referable to any particular cause, yet it had been preceded—according to the history as it was related to Magnus—by a variety of circumstances which complicated the diagnosis. Thus, the boy had received a blow on the side of the head, and had also suffered from mumps, yet the deafness did not directly follow either. The patient was unable to hear the tuning-fork by bone conduction, and the tympanic membranes were nearly normal in appearance. The treatment adopted was purely expectant, and after a time symptoms which supported the already formed suspicion of hysteria were developed. Thus, on one occasion, the boy became giddy, had convulsions, and struggled violently, without, however, losing consciousness. He struck his mother, then asked her to help him, called his absent father, and finally prayed. One day while his mother was kissing him, the child suddenly exclaimed that something had given way in his right ear, and immediately was able to hear. In a few days the hearing power of the left was also restored. Although the sudden sensation of something given way in the ear, which was immediately followed by restoration of hearing, seemed at first sight to point to obstruction of the Eustachian tubes, yet the fact that the catheter had been used by another surgeon without producing improvement, and that the power of perception for sounds conducted through the cranial bones was lost, prevented the adoption of this view, and led Magnus to the conclusion that the deafness was an hysterical symptom.

2. **Küpper.—Clinical Observations.**—Two very interesting cases, illustrating the occasional effects of irritation of the auditory canal by the presence of a foreign body, are described.

(1.) *Epilepsy due to the presence of a foreign body in the ear.*—The patient, a girl of eighteen, had put a piece of some root into her ear, in order to cure toothache. Inflammation was excited by the presence of the foreign body, and the patient became subject to fits, during which she gave a cry and fell, after which convulsive movements set in. Küpper was able to verify their epileptic nature by examination of the pupil during an attack. Syringing the ear produced intense giddiness and vomiting. The meatus was found to contain polypoid growths, which were removed during anæsthesia. Afterwards the offending substance was extracted, with the result that the epileptic attacks were cured, the last having occurred on the second day after the operation.

(2.) *Symptoms of cerebral irritation, due to an epithelial plug in the meatus.*—A lady, seventy-six years of age, was attacked, without apparent cause, by headache, giddiness, vomiting, and spasm of the face and extremities, the trunk being little affected. The patient complained of pain in the left ear, which was also tender. The rather decrepid old lady seemed to be in other respects fairly healthy, while the temperature was normal, and the pulse 76. The right meatus was filled by a mass of epithelium, and syringing aggravated all the symptoms. Eventually the mass was removed, after it had been softened; and from that time the convulsions, vomiting, and giddiness ceased.

3. **Brunner on the Etiology and Symptomatology of Autophony.**—Brunner has done good service in bringing before the profession a detailed discussion of the most unpleasant symptom known as autophony. The patient who suffers from it hears his own voice resonating in a manner so painful that he tends to avoid speaking altogether, while not unfrequently each respiratory act is accompanied by a feeling of vibration in the drum-membrane. Brunner studied a number of cases—mostly of catarrhal origin—and seems to arrive at the conclusion that the symptom in question is commonly due to increased patency of the pharyngeal portion of the eustachian tube. He found that passing a bougies into the tube often produced temporary relief, while not unfrequently the autophony disappeared when the recumbent posture was assumed. This Brunner accounts for on the supposition that the congestion so produced caused temporary closure of the too patulous tube. It was also found that the application of irritants had a similar effect; indeed, the injection of a weak solution of sulphate of zinc through the catheter in some cases effected a permanent cure.

4. **Moos.—Neuropathological Communications.**—This paper is one of very great interest, not only to the aurist, but also to the physician. In it Moos records a number of instances illustrating the connection between diseases of the ear, and those of the nervous system. Of these we can here allude only to the most striking, while we cannot refrain from stating that a perusal of the original will well repay the reader.

Two cases of oscillatory movements of the head in bilateral affection of the labyrinth:—

(1.) A girl of five was first seen on the 20th July, 1881. In May, while living in a district in which scarlatina, diphtheria, and meningitis (epidemic) were common, she was attacked by headache and vomiting. On the eighth day she became deaf. The hearing power fluctuated so that the patient is sometimes able to hear loud sounds. Thus, two weeks before examination she could not hear a sound, while when seen she could answer questions correctly. She staggered in walking and had a tendency to fall sideways. During convalescence the parents noticed nothing abnormal, apart from the deafness, while the patient lay still; but as soon as she was raised her head oscillated, sometimes backwards and forwards, sometimes from side to side, so that for two days it had to be steadied to permit of her taking food and drink. Since then this symptom had disappeared.

(2.) A boy of two (who, when examined, could neither speak nor walk) was attacked by an illness which, from the description given by the parents of the child, seems to have been cerebro-spinal meningitis. "One day," they said, "when he was seated on the floor his head began to swing so much as to strike the floor, and we were obliged to hold it steady." The parents did not know whether the oscillations had occurred also (as in the foregoing case) when the child was raised in bed.

Another interesting case recorded is that of a man who suffered from ear disease, and who became liable to attacks of nystagmus and vertigo, which produced a tendency to turn from left and right. Both ears were affected, but the left was the worse.

**5. Tangeman on Reproduction of the Membrana Tympani by Skin-Grafting.**—The interest of this paper centres in the fact that the author has been able to use skin-grafting with the result of producing, not only healing of large perforations, but also restoration of normal healing power. Transplantation of skin over perforations of the drum-membrane was, we believe, first suggested by Berthold, and a number of others have also found that, by this means, even large openings can be healed; but the results as regards the hearing power were by no means proportionate, and, for this reason, skin-grafting has, so far, been sparingly resorted to. The case recorded by Tangeman is astonishing in its success. The patient, aged twenty-eight, had had otorrhœa for twenty years, had lost a great part of both membranes, and was, of course, very deaf. Soon after the grafts had taken, the hearing power began to improve, and we are told that, eventually, it became normal ($\frac{48}{48}$); that is to say, the chronic inflammatory process which had existed in the tympanum for twenty years must have left no pathological condition of the ossicles or ossicular joints capable of influencing the hearing power; and, moreover, the cicatrised membranes must on both sides have attained the degree of tension, &c., possessed by the normal drum-head. Dr. Tangeman is to be congratulated on the successful result of his treatment, but we doubt whether many cases presenting so many happy conditions will be met with.

P. M'Bride.

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# ORIGINAL ARTICLES.

## ARTIFICIAL LACTATION OF INFANTS.

BY JAMES CARMICHAEL, M.D., F.R.C.P.E.

THE artificial rearing of infants is a subject of ever-increasing interest and importance. The proportion of mothers who are able to suckle their children during the normal period would seem to be decreasing as civilisation advances, and the duty of advising as to the best method of "hand-rearing" is an every-day one in the experience of the medical practitioner.

The whole question is restricted within narrow limits; nevertheless the difficulties to be encountered are not a few, and demand attentive consideration. The large numbers of carefully prepared substitutes for mother's milk with which the market is glutted are, as a rule, wholly unfitted for rearing infants during the earlier months, although some of them prove useful, when added to milk, after the child has attained a certain age.

In this and most other countries the only available substitute for the natural food is cow's milk, and the problem we have to solve is, How can we best make it digestible to young infants? In attempting to lay down definite rules for guidance in this matter, we meet with many difficulties.

It must be admitted that the majority of infants may be reared upon cow's milk simply diluted in proper proportion with water. A large minority, however—and it is those for whom the advice of the medical practitioner is sought—require the milk to be specially treated in order to ensure digestibility. A smaller proportion of children cannot digest cow's milk under any circumstances, and we are forced, in order to save life, to resort to a wet-nurse. No rule for administering the milk can be laid down which will be found generally applicable. It is, therefore, necessary that in the case of each individual child, we should find out what plan of dealing with the milk will best insure its proper digestion.

In deciding upon the most suitable method of administering the milk in any case, a number of considerations must be taken into account. At the outset, we must bear in mind the differences, alike in chemical constitution and physiological action, between woman's and cow's milk. It has been the rule in times past—and, on the whole, it appears a safe one—that we should endeavour to assimilate the cow's milk, in the relative proportion of its constituents, as nearly as possible to that of the mother. Without at present entering into a comparison between the two milks, I would just allude to the larger proportion of casein, albumen, and salts, and the lesser quantity of sugar in cow's than in woman's milk. The chemical differences between the proteid elements in the two milks is one of the chief difficulties we have to encounter, and will be again referred to.

The first essential requisite in milk is *freshness*. It must ever be borne in mind that we are dealing with a fluid very prone to decomposition from external influences, which do not operate in the case of mother's milk, drawn directly from the breast into the child's mouth without coming in contact with air. It is probable that from the moment milk becomes exposed to atmospheric influences, certain changes begin. According to Lister, who, in many of his experiments on putrefactive changes, uses milk in preference to Pasteur's solution, "Milk is a pabulum for all kinds of organisms; nearly all varieties of bacteria will live in milk." Baginsky[*] has corroborated this, and also shown that woman's milk is less liable to putrefactive changes than cow's milk and saccharated condensed milk, and milk foods which are mixed with certain proportions of farinaceous substances are even more prone to such changes than fresh cow's milk. The indigestibility of cow's milk, and the tendency which it shows at certain seasons of the year more specially, to act as a veritable poison to young children, producing cholera infantum and summer diarrhœa, doubtless depends on putrefactive changes set up by the presence of some of the lower forms of vegetable life, as indicated many years ago in a suggestive paper by Dr. Johnson of Leicester.[†]

Bearing in mind such facts as we have just alluded to, the first requisite in milk, then, is *freshness*. In order to insure this, it should be obtained at least three times a-day from the cow, and if possible milked directly into a clean glass stoppered bottle. The vessel should be quite full, so that when the stopper is applied the air is excluded. Should the above conditions be fulfilled, which, unfortunately, is not always attainable, the milk may be considered as nearly fresh as possible, and can be transferred to the feeding-bottle[‡] after having been treated in the prescribed way.

In large towns, the difficulty of obtaining perfectly fresh milk requires us to adopt any available method of retarding decomposition which does not materially interfere with its quality. The practice of *boiling* or *cooking* the milk before use is one frequently resorted to with beneficial results. Are there any objections to so treating milk, and what is the effect of boiling upon it? If a portion of milk be divided into equal parts, one of which is boiled, and the two quantities set aside, it will be found that lactic fermentation commences in the unboiled portion much sooner than in the heated one. It has been argued that heating alters the quality of the milk, and that this practice is therefore objectionable. It must be admitted that in the process of boiling certain proportions of gases, chiefly carbon dioxide, nitrogen, and oxygen, are expelled along with certain volatile constituents which are believed to be present in the milk. Small proportions of the casein and fat are separated in the form of scum, but in such little quantity as not materially to interfere with the nutritive quality of the milk. The liberation of suspended oxygen is believed, and with good reason, to be an important factor in the retardation of lactic fermentation. Boiling likewise tends to render inert any bacteria or other fungi that may be present. In practice, then, it will be found that milk so treated will remain fresh a much longer time than uncooked milk. The digestibility of the milk does not seem to be interfered with by the process; on the contrary, rather favoured. The milk should be boiled in a clean glazed pan, used solely for the purpose; the process being conducted slowly, and continued not longer than about five minutes. In large towns, and especially in warm weather, when the putrefactive changes tend to commence sooner and proceed with greater rapidity, boiling the milk before use is a safe procedure, and may with advantage be generally adopted.

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[*] *Berlin. klin. Wochenschrift*, Feb. 21, 28, 1876.

[†] *Medical Times and Gazette*, Jan. 11, 1878.

[‡] The old-fashioned flat feeding-bottle without a tube is much preferable to those now generally in use, which seem to be adapted more for the convenience of the nurse than the safety of the child.

An important point to attend to in judging of the suitability of a sample of cow's milk is its *reaction*. Normally, in grass-fed animals the reaction of cow's milk is identical with that of woman, being slightly alkaline. In stall-fed animals it is seldom so, being generally neutral or slightly acid. Soxhlet and Heintz found that the relative proportion of phosphate and bi-phosphate of potash had an important influence on the reaction of milk; when the latter salt predominated the milk was acid and had the property of readily coagulating. Warming the milk brought back the alkaline reaction, thus showing an additional reason for cooking it when of doubtful freshness, or when obtained from stall-fed animals.

The next matter requiring attention in treating milk is its *sweetness*. Woman's milk being relatively sweeter than cow's, it is customary to add an equivalent proportion of sugar; and the question presents itself, whether the results of experience justify such a practice. In making use of sugar we have the choice of ordinary purified cane-sugar or milk-sugar (lactose), which, as sold in commerce, is chemically impure, containing a quantity of phosphatic and other salts. Lactose, like dextrose, is a substance capable of undergoing directly the lactic fermentation; this occurs readily by decomposition of the nitrogenous constituents of the milk, from the presence, according to Lister,* of a special ferment. Cane-sugar, on the other hand, is a substance much less liable to undergo transformation, and one which directly exercises a preservative influence on milk. This is observed in the power which it has of keeping condensed milk fresh in its sweetened form for a long time. The slightest amount of lactic fermentation, renders milk unsuitable for the infant. Children are very liable to acid transformations in digestion, such changes tending not only to coagulate and render indigestible the proteid compounds, but also to decompose the phosphates, thereby eliminating phosphoric acid, and depriving the milk of some of its most essential nutritive ingredients. The practice of using sugar-of-milk is, for the reason indicated, I believe, of doubtful value. In most cases, pure cane-sugar in proper proportion would seem to be a safer addition. I do not think in all cases it is necessary to have recourse to the addition of sugar. Many infants thrive well without it.

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* Lister: "Path. Soc. Trans.," 1878, p. 425.

The next point, I should like to direct attention to, is the digestibility of the *fatty ingredients* of cow's milk. The larger proportion of fatty matter in it, as compared with woman's milk, would appear to be not unfrequently a cause of indigestion in infants. We know that during digestion the pancreatic juice has the property of emulsifying the fats and splitting them up into fatty acids and glycerine, the latter substance readily uniting with the phosphoric acid, forming glycero-phosphoric acid. The alkaline intestinal juices perform similar functions in regard to the fatty matter, which has not been dealt with, so to speak, by the pancreatic juices. Should there be, either from deficient secretion of those juices, or an undue quantity of fatty material, an excess of fat which remains undigested, it passes into the bowels, and is liable to undergo various changes, causing intestinal indigestion. In health there is usually a small quantity of fatty matter unchanged in the stools; in indigestion there is an excessive amount, with foul-smelling evacuations, indicating certain alterations in the undigested fatty ingredients of the milk. This form of indigestion, although of comparative rarity, undoubtedly occurs; and in such cases we can unfailingly make the milk digestible by half-skimming it before administration.

*Dilution* has long been regarded as a ready means of rendering milk digestible. Water in certain proportion is generally used for this purpose. During the first few weeks of infantile life, milk will bear dilution very largely. There is more harm done, I believe, by under-diluting than by over-diluting the milk at this time. A due proportion of water would seem to be a useful aid to digestion in the young child, as well as an assistance in tissue metamorphosis and the elimination of waste products. From what we know of the physiology of digestion, water probably assists materially in infants to digest the proteid elements of milk. In experiments on man and animals with gastric fistulae, it has been ascertained that when the digestive process is arrested or becomes sluggish, the secretion of gastric juice is at once increased by the addition of water. Further, we find in women, that one of the most frequent causes of indigestion in the sucking child is too frequent lactation, which tends to concentrate, and diminish the watery element of, the milk, increasing the proportion of albumen in relation to the casein. Hence, the necessity of advising mothers to give the child the breast at regular and suitable intervals. An apparent contradiction of this law would seem to obtain sometimes in adults, for we find persons who will not tolerate much liquid during digestion. The cause of this would seem to be an imperfect relation quantitatively between the water and the acids in gastric digestion, and the remedy the administration of diluted hydrochloric acid or chloride of sodium and more solid food. Such disproportion in digestive elements is seldom met with in children, in whom acids are much more readily secreted, often to such an extent, especially if combined with excess of mucus, as to cause well-marked gastro-intestinal disorder. I shall afterwards refer to the dilution of milk with other liquids, but before doing so must consider the question of the digestibility of casein.

*Casein*, the most important of the proteid elements of cow's milk, differs essentially both in physical and chemical qualities from that of woman's milk. Cow's casein is a white substance in its moist state, becoming of a yellowish colour when dried. It is soluble in water, in the proportion of 1 in 20, forming a slightly acid solution reddening litmus paper. Woman's casein, on the other hand, is entirely soluble in water, forming a neutral or slightly alkaline solution. When subjected to the action of prepared gastric juice, outside the body, it is found that woman's casein dissolves very readily and quickly. Mineral, and also ordinary organic acids, along with the digestive ferment, coagulate cow's casein into hard lumps; no such effect is produced on that of woman. Cow's casein is therefore more difficult to digest than woman's casein, and is one of the principal causes of indigestibility in artificially reared infants. Our efforts must be directed to obviate this as much as possible; and for this purpose several means may be adopted to attain the desired end. The first of these is dilution with water, the importance of which I have already alluded to, and will not further dwell upon. Should simple dilution not succeed, then the addition of alkaline waters will be found generally of service, and of these unærated soda, or potash water, or lime-water will be found most useful; the last is probably of most service, being sedative and astringent as well as alkaline, and tending to counteract any tendency to diarrhœa, which is so often associated with gastro-intestinal indigestion in infants. The mistake is usually made of adding the lime-water in too small quantity. Being a very diluted solution of the earth, it may be freely used without the addition of water itself. Should simple or alkaline solutions fail to render the casein digestible, an acidulated solution may be used in the following way, as recommended by Dr. J. Rudisch:—A small teaspoonful of dilute hydrochloric acid is added to a pint of water, and the milk treated with this in the proportion of 1 to 2, the mixture being boiled for ten minutes before administration.

The addition of small quantities of *chloride of sodium* to milk, diluted in the usual proportion with water, sometimes aids digestion when other means have failed. Another, and a very successful method at our disposal, is the addition to, or rather the dilution of, the milk with *barley*, *rice*, *oatmeal*, or *wheat-flour* decoction. This succeeds well even in very young children, but especially after the age of two months, and would seem to render the curd more digestible, by preventing its coagulation in large masses, subdividing it, so to speak, infinitesimally, and presenting a larger surface for the action of the digestive juices. It has been proposed to add for the same purpose a certain proportion of gelatine to the milk, but of this plan I have no experience. In using barley, oat, or wheat-meal, we must remember that it is generally advisable to give them in the form of decoction during the first two or three months. As the child gets older, the flour may be used with advantage made into thin gruel. In making a choice of these substances we are often guided by the state of the child's bowels; when constipation is present, preferring oatmeal, and when laxity exists, either wheat or barley.

During the first five months of infantile life the power of digesting farinaceous ingredients is very slight indeed, although probably present in even very young infants to a limited extent. Korowin,* Zweifel, and others have made a most interesting series of experiments on this subject, which shows that the secretions of the mouth of very young infants have a certain power of converting starch into sugar. As the child grows older, and especially after the third month, the salivary secretions become gradually increased in amount, until the commencement of dentition, when they are secreted in large quantities. Bearing in mind the age of the child, and the amount of its salivary secretion, we have very safe indications as to the amount of farinaceous material which it is desirable to add to the milk. I need hardly say that the abuse of these foods, which are often added to the milk in too large quantities by ignorant mothers and nurses, is the cause of a deal of illness, not to say death, in young children. On the other hand, their cautious use under the scientific eye of the physician is of great value in artificial rearing. Before bringing my remarks to a close, I would like to add a few observations on condensed milk, now so much used. There are two varieties of this article in the market, sweetened and unsweetened; the latter having only recently come into use. The sweetened variety contains from 30 to 40 per cent. of cane-sugar, which has the valuable property of preserving the milk, but on account of the large proportion of saccharine material, cannot be considered, theoretically at all events, a suitable food for infants. As a matter of fact, many children apparently thrive on it, the general belief, however, being that they tend to become delicate in after life, often rickety. The unsweetened milk being simply reduced without any addition, must be considered a far safer food to rear our infants upon. It is, however, more liable to decomposition, and great care should be taken, by smelling and tasting before use, to see that it is quite fresh. Dr. Baginsky,† of Berlin, has written an elaborate paper on this subject. He admits that unsweetened milk is a useful addition to our infant foods, far preferable to the sweetened variety; but he shows conclusively that the very high temperature to which the milk is exposed during condensation, undoubtedly alters to some extent its composition, by causing changes in the proteid and fatty elements. Goblez and Hoppe Seyler* have also made experiments on this subject, especially in regard to the decomposition of the lecithin and nucleine, two nitrogenous bodies containing phosphoric acid. Such substances, it appears, are liable to decomposition by great heat, the lecithin splitting up into stearic and glycero-phosphoric acids. These changes would seem to favour the separation from the milk, or rather the precipitation, of the earthy salts, which interferes with its nutritious quality in proportion as this occurs. In all the samples of unsweetened condensed milk † I have examined, there appears to be more or less precipitation of earthy salts, as evidenced by a gritty deposit on the addition of water.

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* "Untersuchungen über den Verdauungs apparat die Neugebornen."

† *Archiv. für Kinderheilkunde*, Vierter Band 7 to 10 Heft.

On the whole, the unsweetened condensed milk must be considered a far safer food for infants than the sweetened variety, inferior, however, to good fresh milk when it agrees with the child.

# THE ADVANTAGE OF THE AXIS-TRACTION FORCEPS, ILLUSTRATED BY A SINGLE CASE, AND ITS HISTORY.

By R. W. Irvine, M.B., Pitlochrie.

## PAPER I.

I WOULD submit the following as a case forcibly illustrating the boon which has been conferred upon the obstetrical branch of our profession by the practical application to the midwifery forceps of the principle of axis-traction; and more particularly by the modification of the axis-traction forceps—originally devised in a somewhat cumbrous form by M. Tarnier—which we owe to Simpson.

Mrs. S., æt, 33, primipara, a healthy and muscular woman of middle height and good proportions, with no apparent deformity whatever, fell in labour on 18th November, 1877. Sent for during the night, I arrived early on the morning of the 19th, and found the midwife in attendance, and the following condition of parts:—The os was fully dilated, flaccid, and somewhat œdematous, and filled by a mass of nearly cold, pulseless, and tense cord. The head could be felt high up, lying transversely at the brim of the pelvis, but not the least entering, and the waters had escaped, as the nurse told me, several hours before my arrival. Though the patient's strength was good, there was clearly nothing to be gained by delay, and so I at once, under chloroform, applied with considerable difficulty—and only after freely incising the swollen and tense cord in several places, to let me introduce the blades—Simpson's double-curved long forceps. About ten minutes' steady and powerful traction, in as nearly as I could the direction of the axis of the pelvic brim, convinced me that I had no hope of extracting the entire head; and so without compunction, the child being already dead, I perforated, and even then with difficulty, and after the evacuation of a large amount of the cranial contents, I extracted the head, and again with considerable difficulty, the shoulders, of a large, mature, and well-developed female child.

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* "Physiolog. Chemie," p. 80.

† The chief brands in the market are Gruyeres, First Swiss, and the Edelweiss. The first named seems to show a smaller deposit of inorganic salts than the others.

The mother made a perfectly good and natural, which in this region means a remarkably quick, recovery. A month subsequently I carefully examined her pelvis; and, though I made no measurements in inches and fractions of an inch, I satisfied my mind that the pelvis was of the marked male type, strongly developed in all its bony structure, with large intra-pelvic muscles, rigid pelvic ligaments, and a very strong projection of the sacral-promontory,—such a pelvis as made me look forward with no pleasure to a future delivery of a female child, and something of dismay to that of a full-time male; all the more as the husband is of the short, broad, thick-necked true Celtic type, which Providence has endowed alike with a strong philo-progenitive faculty, and the power to transmit their physical characteristics to their progeny with almost invariable (in my experience) success. Her second confinement was on 13th January, 1879. Her condition on my arrival was much as at last confinement, except that the cord was not prolapsed, and the fœtal heart beat strongly. The head was lying transversely, very high, and not beginning to enter the pelvis, though the pains were powerful and regular, and with very short intermissions. The os was fully dilated, and projected into the vagina as a flabby distendible funnel, somewhat œdematous. As I feared that I should have to perforate, and preferred perforating the cranial vault to behind the ear, I decided not to turn; but under chloroform applied Simpson's long forceps as before with difficulty, and introducing the whole left hand into the vagina, to secure absolute accuracy in placing the blades. I was utterly unable to do more than merely jam a very small segment of the cranial vault into the brim with the most powerful and steadily-continued traction in the axial direction, and with numerous rests. There was nothing for it but perforate again, and then even it was by no means easy to extract a large robust and mature male child, whose physique, while it made its destruction the more certain, made it also all the more deplorable. The third confinement was on the 9th March, 1880, and was different in its circumstances, though the result was equally unfortunate. Calculating upon her statements to me, and her physical condition taken together, I got her down from her remote home in a glen to a lodging beside me, at what I considered to be the second week of the seventh menstrual month. She was in good health, and the child showing every sign of vigorous life. After a somewhat tedious preparatory dilatation of the os with sponge-tents, and satisfying myself that the head was lying at it, I completed dilatation to the extent of easily admitting my right hand with india-rubber water-bags; and then floating the child round by the bi-polar method of version, I felt the legs, and rupturing the membranes delivered with as much speed as possible. Not enough, however; the head caught at the sacral projection, and took some time in extraction, and the child, a male, was delivered lifeless, and all my efforts failed to excite respiration. From the size and marks of the child, I believe that it was entering its ninth instead of its eighth month of intra-uterine life, and some uncertainty on the mother's part as to certain of the landmarks of calculation confirmed that belief. She made a perfect recovery. My only hope now lay in either—first, sterility for the future; or, second, delivering her at the seventh month; the third choice, that of destroying mature children, being as distasteful as it was unsatisfactory. My short history has hitherto been like the play of "Hamlet" without the Prince of Denmark. It is a vindication of the axis-traction forceps without yet bringing them on the scene. A short account of her fourth confinement will remedy this; and, thanks to that instrument, furnishes a cheerful contrast to her hitherto gloomy obstetrical history. In autumn of 1883 she consulted me, when I discovered that she would probably be confined at full time—about the end of the first week in January. In spite of my strong urgency that she would come down in the beginning of November, and have premature labour induced, she resolved to let herself go to the full time, her experience of the former induction of premature labour not giving her much encouragement to submit to it again; while also she was doubtless impelled by that spirit of fatalism, not far removed from sloth, which is not peculiar to the unspeakable Turk, but is found equally north of the Grampians and south of the Balkans. Accordingly, she fell in labour, late on the night of the 10th January, 1884, of her fourth child; and early on the morning of the 11th I got to her—it may be believed, in not a very hopeful mood. I had one ray of hope only. Two years previously I had received, by the kindness of Professor A. R. Simpson, a pair of his modification of the axis-traction forceps; and my experience with them in about a dozen cases (only one or two, however, of which I could say approached the condition of *test* cases) gave me, at all events, this assurance—that in them I had a means of bringing to bear on the fœtal head an amount of direct pull, and in the proper axes, which in the previous confinements I had to operate without.

I found the old state of matters—os flaccid, œdematous, and dilatable; water escaped; head high up; and the occiput to the left and slightly forwards, and possibly a little more shoved down into the brim than I had hitherto felt it at her previous confinements. Child strong and vigorous, and pains regular, long, and well-sustained. Chloroforming deeply, and introducing the whole of my left hand to adjust the blades, I applied the axis-traction forceps, in the proper oblique diameter, over the right temple and left mastoid bone, and pulled. In a couple of minutes I had the vault of the skull pulled down into the pelvis to an extent I never attained before without perforating, and then it stuck; and for about ten minutes, with pulling and resting time about, I made no progress whatever. With my muscles almost tired out, and when on the point of perforating, I resolved to have one more long and strong pull; and after about four minutes' continuous work I heard a muffled sort of crunch, deep in the pelvis, and felt the head coming. The handles curled up over the pubis, and delivery of a live female child—large, well-developed, and fully matured—was completed without further difficulty. The child showed signs of life from the first, but was extremely feeble. After a few minutes of artificial respiration, however, and the application of warmth to the surface and brisk friction, it rapidly developed vigorous breathing. I was somewhat afraid that the sound of fracture which I heard might have been a separation of one or other sacro-iliac synchondrosis; but examination of the child's head showed what it really was. The left frontal bone at its postero-superior angle was fractured and comminuted, but happily the skin was entire. The fracture was depressed to the size and shape of an ordinary-sized hen's egg, split in its long axis in two.

The skull, where grasped by the blades of the forceps, was uninjured; but the soft parts were much bruised and swollen, and by next day had formed at either spot a large soft sanguineous (no doubt) tumour. The mother and child have both made a perfectly uninterrupted recovery; and on the fourteenth day she was up at the fireside, and the infant bore no marks of the bad usage it had received, except faint stains of ecchymosis on its right forehead, and a slight fulness and bogginess in the tissues over the seat of the depressed fracture. It is quite clear, from its situation, that the fracture was caused by the sharp projecting sacral promontory; and both from the depth of the depression and the shape which the skull had assumed, independent of the fracture, it is certain that without that fracture taking place the head could never have got past the sacral promontory entire.

Any practitioner will sympathise with the intense satisfaction with which I look back upon the case, and the gratitude with which I regard the instrument, as well as its inventor and donor. No doubt, my experience with the axis-traction forceps is only that of every accoucheur who has taken the trouble to give them a fair trial, and who has had the good or bad luck to come across a thoroughly test-case since obtaining them. The two great features of this instrument, giving it advantage over any other hitherto invented sort, are:—(1.) The way in which it permits of the head adjusting itself by successive stages to the curved axis of the pelvis, and keeps up compression the while, leaving the operator—untrammelled by the cares of either guiding or compressing—to concentrate his attention on pulling, and watching his patient and the progress of his success. (2.) The tremendously increased power of pulling it gives him, both from the shape of the transverse traction bar and from the play of the traction rods at their junction with the blades, permitting him to apply all his power in a single direction, and that the most advantageous at every stage, instead of splitting it up into its three elements: *pulling*, which is progress; *rotating*, which is skidding the wheel; and *guiding*, which is applying the brake. Both these advantages I was fully conscious of in this case. But if asked to which of them I was indebted, I should, without hesitation, say to the second. It was it which enabled me to apply such power in the entering axis of the pelvis that I smashed the obstructive angle of the forehead on the sacral promontory, and thereby converted the case into a comparatively easy long forceps case, which any instrument would have extracted.

I may add that my obstetric work is carried on in a very typical scattered country practice; and that, though I carry a pair of short forceps as well as the axis-traction instrument in my bag, I can conceive no case in which the latter would have any disadvantage over the former, and few in which it would not have advantage; while the difficulty, and fumbling, and mixing up of bars and handles, which some of my medical friends talk of in connection with the application, exists, I can assure them, either in their own imagination or their own incapacity. And, moreover, the confidence which their possession gives one, and the complaisance with which it enables him to regard his perforator and crotchet lying in the bottom of his bag, amply atone for any little increase of bulk there may be in the axis-traction forceps, and any little difficulty there may be in packing the handles into the ordinary obstetric-bag.

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## NOTE ON THE USE OF IRIDIN IN THE TREATMENT OF THE SICKNESS OF EARLY PREGNANCY.

By D. BERRY HART, M.D., F.R.C.P.E.,

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ALL practitioners are aware of the intractability of even the minor degrees of the sickness of early pregnancy. The ordinary drugs, such as cerium oxalate, bromide of potash, drop doses of ipecacuan, so often fail that both patient and doctor frequently rely on time and patience as the ultimate cure.

For more than a year past, I have found Iridin act well in such cases, and although I do not by any means allege that it can cure in all, or in any large proportion of cases, I have yet had greater success with it than with any other remedy I have tried. In this short note I shall first describe the way in which it is to be used, and add a few remarks on its probable mode of action.

The patient is directed to take one of the following pills at night:—

℞— Iridin, gr. ij.;
Cons. Ros., *q. s.*
Fiat pilula: mitte tales iij.
*Sig.* one at night.

This must be followed in the morning by a draught of Friedrichshall water, a teaspoonful of the Carlsbad salts, or a doubly strong Seidlitz powder.

This whole plan may be repeated on a second or third occasion if necessary.

My results have been so far very satisfactory,—*e.g.*, out of nine cases where it was tried, eight were cured.

Of course, as all know, this is merely the admirable remedy for a bilious attack, recommended by Professor Rutherford in his valuable monograph, " On the Physiological Actions of Drugs on the Secretion of Bile," ("Royal Society Transactions," Edin., vol. xxix.) So far as I know, however, it has not been used in the special case of the morning sickness of pregnancy. I was led to the use of this remedy in the following way:—Dr. Matthews Duncan, in the course of an interesting lecture on Hepatic Disease in Gynecology and Obstetrics

("Diseases of Women," Churchill, 1883), alludes to the probable influence of the liver in causing vomiting in pregnancy, and to the very interesting fact that, in pregnancy, there is normally some parenchymatous degeneration in the liver. We therefore now know that pregnancy, apart from the remarkable local changes it induces in the uterus, exerts also a widespread influence over the organism, inducing changes in the blood, heart, kidneys, nervous system, and, as already noted, in the liver.

Many of the patients who suffer from sickness look jaundiced, and therefore we have here a clear indication for the action of some liver drug.

As Rutherford has shown, the Iridin increases the flow of bile with the intestine, but a purgative is necessary to expel it, inasmuch as Iridin is not aperient. I do not wish to piece out any theory as to the cause of morning sickness, or the *modus operandi* of the drug I have recommended. I only wish my professional brethren to give it a trial, and enable its value or worthlessness to be settled.

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## *REVIEW.*

**A Study of the Bladder during Parturition.** By J. HALLIDAY CROOM, M.D. Edinburgh: David Douglas, 1884.

WE shall give first a resumé of the subject-matter of this book, and then notice some points which are open to criticism. The subject is divided into four parts: Uterine-pressure during Parturition, the Topographical Anatomy of the Bladder, Original Experiments to determine the Amount of Bladder-pressure during Labour, the Results thus obtained.

Under the first head reference is made to the work of Poppel, Matthews Duncan, Ribemont, Joulin, Schatz, Poullet, and Haughton. The great difference between the results obtained by Matthews Duncan (who estimates the uterine-pressure at 80 lbs.) and Haughton (who estimates the total pressure at 577 lbs.) is ascribed to two circumstances; Haughton's estimate gives the breaking-strain of the uterine muscle, while Matthews Duncan calculates the pressure exerted on the fœtal head in normal labour—it includes also the force lost on the girdle of contact. Under the anatomy of the bladder, its relations are described in the unimpregnated female, in early and late pregnancy, and during parturition. The chief peculiarities of the female bladder are, that it is flatter and more capacious than the male, and is asymmetrical—the right half being larger than the left. In early pregnancy (during the first three months) the uterus prevents vertical distension of the bladder; hence it rarely rises into the abdomen. If the uterus be retroverted, full distension of the bladder diminishes the posterior displacement; slight retroversion in early pregnancy is "by no means rare," and causes frequent micturition. In parturition, the bladder (even when empty) is entirely an abdominal organ; as it distends it produces by traction on the vagina a well-marked ring in the roof, which disappears on catheterisation. The position of the supra-pubic swelling varies according to the position of the child; in 8 cases it was to the right, all of which were L.O.A.; in 4 it was to the left, in 3 of which the dorsum was to the right; in 3 it was central, of which 2 were breech cases.

The experiments to estimate the bladder-pressure during labour were made as follows:—A No. 8 gum-elastic catheter was placed in the bladder and connected by means of india-rubber tubing with a mercurial manometer; into the tubing a T piece was introduced, through which the tubing and bladder could be filled and emptied. The amount of urine in the bladder was measured after each experiment; when the bladder was empty, 2 oz. of water were injected. The experiments were conducted in the Edinburgh Maternity Hospital, in twenty-five cases of normal labour with vertex presentation—19 L.O.A. and 6 R.O.P. On some patients more than one observation was made. The head lay as follows: 4 observations at brim, 26 in cavity, 5 at outlet. In 16 cases the membranes were unruptured; in 17 ruptured.

The results of these experiments are the following:—In the *interval between the pains* the pressure was ·2 inches of mercury in every case, whether the bladder was moderately or fully distended; this is ascribed to the position of the manometer. The results of the observations made *during a pain* are given in a series of elaborate tables; of these No. I. gives the state of the os and membranes, the presentation and position, the situation of the head, the duration of the observation, the minimum and maximum rise of the mercury, and the amount of urine in the bladder. The greatest rise (a pressure of 3·2 lbs. on the square inch) was observed in a primipara in the second stage, with the head in the cavity; the lowest rise (a pressure of ·1 lb. on the square inch) in a primipara in the first stage, with the head at the brim. It makes no difference whether the patient be primiparous or multiparous, and whether the bladder be partially or fully distended, provided there be not over-distension. The cause of the increase in pressure is said not to be direct pressure of the fœtal head; because (1) the bladder is above the head in the second stage in which this rise is greatest; and (2) traction with forceps does not increase the rise. It is referred to three causes: (1) the antero-posterior bulging of the uterus during a pain will press the bladder against the abdominal walls; (2) as labour advances, there is traction on the bladder through the elongation of the cervix; (3) the contraction of the abdominal muscles explains the great increase in pressure in the second stage.

In an Appendix, the results of a second series of experiments are given. In these the variations in the manometer were recorded as tracings on a revolving drum, of which a specimen is given in Table IX. In this the pain is represented by a large wave of twenty-six seconds' duration; the acme of the pain appearing as a series of waves of nearly the same intensity. The large waves in the first stage are ascribed to voluntary efforts; in the second stage, to tension of the abdominal muscles. The smaller waves are due to alterations in the uterine ovoid; some may be caused by contraction of the walls of the bladder from inadiation of nervous impulse. The results as to the pressure in the first and second stage confirm those of the first series of experiments.

A second section of the book is devoted to the bladder during the early puerperium, and gives the results of observations made at the Maternity.

The bladder when empty lies at a lower level during the puerperium than during pregnancy. The puerperal uterus, when the bladder and rectum are empty, and the patient lying on the back, is mesial. As the bladder distends, the fundus-uteri is displaced upwards backwards, and to the left; it also rotates so as to look to the right. Twenty to thirty ounces of urine will produce these changes in position.

This book forms a valuable contribution to experimental investigation in obstetrics. It shows, at the same time, the difficulties that beset clinical investigation, and that the results obtained are no gauge of the labour employed. The idea of measuring the force during parturition by the variation in intra-vesical pressure is quite original. The employment of a rigid tube (say, made of block-tin) would be an improvement on the india-rubber tubing. The elastic walls of the latter must affect the pressure in the manometer, and may have produced some of the secondary waves in the graphic tracing. The statement on page 54, that the bladder never forms part of the girdle of contact in the second stage, is open to question. There is no doubt that the bladder is displaced upwards; but that the trigone is not compressed between the child and the symphysis, cannot be proved clinically; vesico-vaginal fistula is usually referred to such a long-continued compression during the second stage. A sufficient number of frozen sections have not been made to give anatomical demonstration of this statement; in Braune's section, the urethra, but not the bladder, is divided mesially. It is not, therefore, proved conclusively that the rise in the mercury is not due to direct pressure by the uterine contents. At the beginning of the second stage in a multipara, the fœtal head may press on the trigone of the bladder; when the head is in the cavity, the shoulders of the child may do the same. It is not mentioned whether the patients were anæsthetised, or whether any attempt was made to diminish the action of the abdominal muscles. It would need to be proved by experiment that, when these were in abeyance, the great increase in pressure was no longer observed in the second stage, before we attribute it to their action. It is assumed that the force of the uterine contractions themselves is the same in the first and second stages. Would more powerful uterine contractions not increase the intra-vesical pressure, apart from the action of the abdominal muscles?

Although the explanation advanced of the phenomena is open to question, this does not affect the value of this series of most original observations. A new field of inquiry has been opened up, and for this alone obstetricians would be indebted to Dr. Croom. The book is illustrated by several woodcuts, and the tables are admirably got up. The patients' names might have been omitted in the latter. With regard to side-points in the book, too much importance is, we think, attached to the fact that the early pregnant uterus interferes with the expansion of the bladder. Why does the post-partum uterus (which, forty hours after delivery, measures 6 x 5 x 3 in., and weighs fully 1½ lb.) not interfere with the expansion of the bladder?

A. H. F. Barbour.

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# REPORT ON OBSTETRICS.

1. **Thornton, J. Knowsley.**—The Relative Value of Hysterectomy and of the Complete Removal of the Uterine Appendages for the Cure of Uterine Fibroids. *Am. Gyn. Tr.*, vol. vii.
2. **Rheinstædter.**—Der Spüllöffel. (The Irrigation-Spoon.) *Centralblatt für Gynäkologie*, No. 3, 1884.
3. **Thomas, Gaillard.**—Prevention and Treatment of Puerperal Fever. *New York Medical Journal*, 15th Dec. 1883.
4. **Schmitt.**—Contribution to the Pathology of the Mucous-Membrane of the Uterus. *American Journal of Obstetrics*, Dec. 1883.

1. **Thornton on the Relative Value of Hysterectomy and of the Complete Removal of the Uterine Appendages for the Cure of Uterine Fibroids.**—In this paper, Mr. Thornton first discusses the mortality in cases of abdominal section for the removal of large fibro-cystic or fibroid uterine tumours. Out of 352 cases by Pean, Wells, and others, 90 died—*i.e.*, 25′ per cent. In cases of fibro-cysts alone, the death-rate is 40·70 per cent. Thus, not only is the mortality high, but convalescence in successful cases is tedious, and the necessary extra-peritoneal treatment of the pedicle causes liability to ventral hernia.

As is well known, removal of the ovaries by Battey's operation was found to give best results in fibroids, and now admirable results are obtained by the removal of the uterine appendages, thanks to the work of Tait. The results by this method in the hands of Tait, Savage, and Thornton, give a mortality of 8·16 per cent.

Mr. Thornton recommends the ligature and removal of the uterine appendages, as follows:—After opening the abdomen he transfixes the broad ligaments deeply with No. 3 Chinese silk, soaked in 1-20 phenol solution for an hour before the operation. Two inter-locking ligatures are usually enough, but more may be requisite, and in all cases he ties a separate ligature over the whole stump before cutting anything away. He attributes the cure to the removal of the ovaries and of the ovarian and Fallopian tube vessels which run near the tube. It is these specially which are dilated. The uterine arteries are not so much enlarged, and in any attempt to tie them the ureters might be included.

Of course this operation is best performed before the tumour is too big, and Listerism is held to be a *sine quâ non.*

It should be noted, however, that Mr. Keith's recent results in Hysterectomy are much better than the Hysterectomy ones given by Thornton, whose statistics could not of course include them.

D. Berry Hart.

2. **Rheinstædter on the Irrigation-Spoon.**—As long as accidents occasionally occur during the use of intra-uterine injections, any proposal intended to minimise the risk of such accidents is deserving of consideration. The washing out of the uterus is by no means a new operation, having been employed by Hippocrates for the removal of blood clots, and in the treatment of uterine catarrh; but the procedure fell for a long time into disuse, and it has only recently been generally and widely adopted in gynecological and obstetric practice.

Dr. Rheinstædter in this paper describes an instrument, the irrigation-spoon, which he has used extensively in his practice for many years with the best results, and with a total absence of those distressing accidents which have occurred in the hands of even the most noted gynecologists.

Before, however, proceeding to consider intra-uterine irrigation, the author has a few words to say concerning the use of vaginal injections. He condemns the curved vaginal-tube with its olive-shaped, many-holed extremity; for this, on account of the curving, presses against the anterior vaginal wall, which partially occludes the small openings, diminishing the volume and strength of the small sprays of water issuing therefrom. Hence the vaginal fornices where the secretions mostly accumulate are not thoroughly washed out. He, therefore, recommends a simple straight tube about 8cm. in length, with a large opening at the extremity, which on being introduced into the posterior fornix thoroughly irrigates the whole vagina. The old-fashioned syringe must be entirely abandoned, and the irrigator itself should be the only reservoir, while the head of water is the only force we are justified in employing. For the purpose of controlling the flow of the injection, a strong spring clip is placed on the tubing a few centimetres from its extremity, and by this means the fingers of the same hand which introduces the tube can be used for tightening or relaxing the clip.

When patients make their own vaginal injections they are to be directed to push the instrument well to the back in order to ensure that it does not enter the cervix, "an occurrence," says Dr. Rheinstædter, "which, though surely unpleasant, has not yet occurred in my practice."

Passing on to the consideration of the irrigation of the uterus itself, here also the author considers as useless the curving of the instrument. In cases of intra-uterine irrigation, and indeed in all cases in which an instrument is passed into the uterus, the volsella should be employed to fix the uterus, to straighten its axis, to obviate a side-to-side motion, and thus enable the tube to glide easily into the uterine cavity. This method is to be preferred to the fixing of the fundus uteri from without through the abdominal wall, which necessitates the presence of a qualified assistant. Here also it may be noted that the irrigation of the uterus should be done as a rule by the physician himself, and only in cases of absolute necessity confided to the care of a nurse, who must be specially instructed concerning it. A straight tube, further, can be moved about in every direction in the interior of the uterus and thoroughly irrigate all parts of the walls, while a curved instrument, such as the ordinary double catheter, must for the sake of safety be kept in the same position after its introduction, and thus fails to achieve a complete washing out. From these considerations it therefore follows that a straight tube of glass or india-rubber, with a single large opening at its extremity, would be the best instrument for the purpose did there not exist the risk of intra-venous injection of liquid and air. Now, there can be no doubt such a risk does exist, and that it accounts for the cases where dangerous and even fatal results have followed the use of the injection. Many such cases have been reported by Olshausen, Richter, Fritsch, Veit, and others. Shock, Dr. Rheinstædter, does not regard as the cause of death. When fluid is injected into a uterine vein immediate signs of collapse are manifest, while if air enter, death occurs at once.

How, then, can we avoid this danger? The author considers that the double-channelled catheter is superfluous and unsatisfactory, for he holds that free exit through the cervical canal is a *sine quâ non* for uterine irrigation, and further, the eyes of the catheter are constantly being occluded by clots and fragments of tissue. Neither is the permanent irrigation method of Schüking to be recommended, for although perfectly safe, it has not sufficient power when there is a rapid stream of blood and particles of tissue from the uterus, and when a rapid and thorough disinfection is required.

The instrument which the author has found most useful and satisfactory is a modification of the irrigation curette of M. B. Freund. This instrument is an ordinary spoon-shaped curette with a hollow stem, the bore of which terminates in a small opening within the concavity of the spoon, whilst to the proximal extremity is attached some elastic tubing by means of which the irrigating fluid is led into the instrument. Rheinstædter has abandoned the sharpness of the spoon, holding that it is impossible to curette and irrigate properly at the same time, the rush of the fluid destroying the fine sense of touch requisite for a proper scraping of the interior of the uterus. Further, he has placed two small holes in the spoon-shaped extremity, in order that that part of the uterine wall with which the spoon is lying in contact may also be accessible to the irrigating fluid.

The fluid to be injected flows along the elastic tubing into the handle of the instrument; it then runs through the central canal of the stem, and breaks up into several sprays within the concavity of the spoon-shaped extremity. Thus no occlusion of the point of exit can occur, for the strong stream sweeps everything before it, while injection into a uterine vein cannot occur, for the stream breaks always within the point, and this is so in whatever position the instrument may be held. The fluid which has served to irrigate the uterus escapes into the vagina through the cervical canal. Any one present can be utilised to hold the volsella and to open or shut the clip.

Dr. Rheinstædter has used this irrigation-spoon for many years, is thoroughly satisfied with it, and has had no accident during its use.

Still, as it is not possible with absolute certainty to say whether intravenous injection might not occur even with the fine sprays, he recommends that the following precautions should be observed in using the instrument: (1.) The irrigation of the uterus should be made with the patient's head and trunk raised. (2.) In order to avoid injection of air, the irrigation-spoon is only introduced into the uterus when the irrigating fluid is already in course of exit through it. (3.) While the one hand of the physician holds the spoon, the forefinger of the other hand must lie in the cervix in order to hold it open continually for the exit of the irrigating fluid. (4.) If the patient show signs of sudden collapse, or if the outflowing current stop, the irrigation is to be immediately discontinued.

J. W. Ballantyne.

3. **Gaillard Thomas on the Prevention and Treatment of Puerperal Fever.**—The medical societies of New York have lately given considerable attention to the subject of puerperal infection. It has formed an important topic for debate; essays upon it have been read by the leaders of the profession, and their opinions have received deliberate attention and consideration. Dr. Gaillard Thomas, of New York, has entered the field of controversy by bringing before the Academy of Medicine his views, in an essay on the Prevention and Treatment of Puerperal Fever. Starting with his reasons for the position he has taken, and for the introduction and preparation of his paper, the author remarks that, looking back four years ago, he remembers when the question of intra-uterine injection was under discussion of the American Gynecological Society, that with one exception he stood alone in its strong and uncompromising advocacy. He states that, if not the first, he was among the very first in America who adopted the use of the intra-uterine injection. For these reasons, he trusts his large experience in this method of treatment may prove of some value. Dr. Thomas reviews the feature in the condition of the puerperal woman which specially render her subject to the dangerous disorders so liable to spring up during pregnancy:—

(1.) The state of the blood is considered. From its hyperinotic condition, two liabilities arise—a tendency to the formation of thromboses, and a tendency to prove a prolific ground for the development of sepsis and zymosis, &c. The zymotic diseases assume an entirely different aspect as regards their prognoses when they attack the puerperal woman.

(2.) The nervous system is in a state of excessive excitability and sensitiveness; and influences which are very controllable in the non-puerperal state produce disastrous results now.

(3.) The local conditions resulting from pregnancy deserve special consideration. The pelvic viscera are in a state of congestion, the lymphatics, glands, arteries, veins, and nerves, of the whole genital tract are in a state of physiological hypertrophy, permitting the uterus to increase in size, from an organ three inches in length, ascending so as to reach the ensiform cartilage.

The author next describes the natural history of the ordinary local results of human parturition. Forty-eight hours after delivery the uterine mucous-membrane, covered by the grey sloughy-looking decidua vera, presents all over the surface an unhealthy, unclean look. At one point the placental site is seen, raw, irregular, and covered over by minute traces of the placenta and small blood clots, which close the mouths of the uterine sinuses. In every case the cervix, vaginal mucous-membrane, perinæum, and vulva are in varying degrees lacerated; and in every case the offensive fluid, called lochia, poisons these freshly made, unprotected wounds. Yet, with all these unfavourable conditions existing, what is the result? asks Dr. Thomas. Recovery is the general rule; death the very rare exception. But now and then this order of things is changed. Some ferment or specific poison gains access to the genital canal, and acts as rapidly as a little yeast added to dough. The entrance of this poison produces definite and alarming symptoms; death is now the rule, recovery the rare exception.

The pathology of this affection, styled puerperal fever, is next discussed. The author's extensive observations have led him to believe that *puerperal fever is puerperal septicæmia.* It matters not, he says, the form it may assume, but the essence of the disorder is a poison absorbed into the blood of the parturient woman, through some solution of continuity, and which in the appropriate soil of the puerperal condition fructifies and produces the result designated puerperal fever.

Dr. Thomas strengthens his argument by quoting first from the writings of Hervieux, who, as early as 1870, in his work on the Diseases of Child-bed, expresses himself upon this point in the following words: "I believe in the multiplicity of puerperal diseases. I believe in puerperal poisoning as the source of them. Here, in two words, my creed is presented."

Next, the opinion is cited of a committee appointed by the Berlin Obstetrical Society in 1877, to consider the nature of puerperal fever.* This Committee reports that the different forms of puerperal fever "have this in common: they are called into being by the absorption from the organs of generation, of a material which gives rise to destructive inflammation and fever."

"Puerperal fever is, indeed, nothing else than the infecting of fresh wounds —such as are found in every newly-delivered woman—with destructive septic materials. Every newly-delivered woman is liable to suffer from the dreaded infective wound diseases,—which, in persons wounded under other circumstances, are called pyæmia, septicæmia, blood-poisoning, &c.,—so soon as suitable septic materials are brought into contact with the genital organs."

The length of the paper will not permit us to consider at all the next part of the subject which receives the author's attention—viz., the nomenclature of this disease; but we pass on at once to briefly notice:—

(1.) The prophylactic measures which should be adopted in all midwifery cases, occurring either in hospital or in private practice—

1. Thorough cleanliness in the surroundings of the patient, and the necessity of dispensing with all superfluous furniture in the lying-in room.

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* "Report of Puerperal Fever Committee of Berlin Obstetrical Society," 4th Dec. 1877, p. 9.

2. The importance of the nurse and physician ensuring that their clothing is clean, and free from exposure to the effluvia of any septic affection. Should either of them have been exposed within a fortnight to the effluvia of scarlet fever, erysipelas, or the like, besides changing every article of clothing, they should bathe the entire body with a reliable antiseptic lotion; Dr. Thomas prefers for this purpose a saturated solution of boric acid.
3. With the onset of labour the patient is to receive a warm vaginal injection of antiseptic character, and this to be repeated every four hours; the vulva and surrounding parts are to be thoroughly washed with the same.
4. At the time of labour, both doctor and nurse must, after washing their hands with soap and water, soak the hands for several minutes in a solution of bichloride of mercury, 1-1000.
5. The third stage of labour must be efficiently produced; all portions of placenta and membranes removed; and ergot must be administered three times a-day, and kept up for a week, for the complete closure of the uterine cavity, the expulsion of clots, and occlusion of the utero-placental vessels.
6. At the conclusion of the labour, the doctor must make a careful examination of the patient. If the perinæum be lacerated, let it at once be closed by suture, and any slight solution of continuity upon the labia or vulvar extremity of the vagnia should be dried, touched with equal parts of sol. ferri. persulph. and carbolic acid, again dried and painted over with gutta-percha collodion.
7. Six or eight hours after labour, the vagina should be syringed out with an antiseptic solution, and a suppository containing 3-5 grains of iodoform should be placed within it under the os-uteri.
8. These injections and suppositories should be repeated every eight hours in normal labour, twice as often in difficult or instrumental labours, and they should be kept up for at least ten days.
9. When catheterisation is necessary, a new gum-elastic catheter should be used, and this should be destroyed at the conclusion of the case.
10. Let the physician assure himself of the competency of the nurse, to wash out the vagina thoroughly, and to place the antiseptic suppositories just where they should be, and to use the catheter without injury to the patient.

(2.) The treatment of puerperal septicæmia:

1. The diagnosis being determined, Dr. Thomas at once commences with the hypodermic administration of 10 minims of Magendie's solution of morphine; and throughout the severity of the attack, whenever suffering of body or mind occurs, this should be repeated (perhaps once in every six or eight hours).
2. The physician must next decide whether, in his opinion, the septic disease has originated in the wounds between the os-internum uteri and the vulva, or in the endometrium, above the former point. If he decide in favour of the former point he should persist, for a time longer, in the more thorough use of vaginal injections; if of the latter, intra-uterine injections should be at once resorted to. The question has to be decided by the efficacy or inefficacy of the vaginal injection in bringing down the temperature, and controlling other grave symptoms.

The dangers of the intra-uterine injection may be briefly summed up as follows:—(1.) Introduction of air into the uterine cavity. (2.) Production of hæmorrhage. (3.) Danger of introducing fluid directly into the general circulation. (4.) Shock. (5.) The passage of the tube into a Fallopian canal, and the injection of fluid directly into the peritoneal cavity. These dangers may to a great extent be avoided by care as to details, and by proceeding with the whole operation gently, cautiously, slowly, and intelligently.

3. The uterus being cleansed, attention should be turned to controlling the temperature. This the author does by using a mat composed of a rubber tube rolled upon itself in a circle, covering the whole abdomen; the upper end of the tube is anchored in a tub of ice-water, placed three feet above the level of the patient, and the lower end *falls* into a tub upon the floor.
4. The administration of febrifuges, quinine, in capsule or by suppository, Warburg's tincture, in the form of solid extract, or salicylate of sodium.
5. Fluid diet, given often and in small amounts.
6. Efficient and abundant assistance.

Limited space prevents further consideration of this paper. We consider that the author lays too much stress in the treatment of puerperal fever, upon vaginal douching, and not sufficient upon intra-uterine injections. As a rule it will probably be impossible to decide whether the absorption of the poisonous products has occurred from vaginal or uterine abrasions, and consequently time should not be lost in waiting for the inefficacy of the vaginal injection, to prove that the mischief is situated at a higher point in the genital tract. The author does not state the value of watching the pulse as an indication for treatment; we believe as much importance should be attached to this as to the temperature, the temperature not always being by itself a true index of the exact condition of the patient.

EDWIN BAILY.

4. **Schmitt on the Pathology of the Mucous-Membrane of the Uterus.**—At present it cannot be said that any definite and approximately faultless pathology of the uterine mucous-membrane exists, although of late years much has been done at least to make a start in this direction. The object which the author of this paper has in view is to add something to the steadily-increasing fund of knowledge in this branch of inquiry. It cannot but be supposed that by such efforts much at present unknown will be learned; for as the uterine mucous-membrane undergoes such a wide series of changes, as in menstruation and pregnancy, which we call normal, how much greater are its changes in a pathological direction likely to be? The normal structure of the uterine mucosa is a subject upon which at present all are far from being of one opinion, and the author of this paper brings forward his own views on this subject. There is no sub-mucous tissue. The mucous-membrane lies upon, and may be said to be continued between the muscular fibres. It consists of glands and vessels embedded in a stroma. The glands are lined by ciliated epithelium, and lie obliquely or parallel to the mucous surface. But the most important part from a pathological point of view is doubtless the stroma. This consists of two kinds of cells—round and spindle-shaped—embedded in a homogeneous or finely granular intercellular substance. The spindle-shaped cells are branched, and have processes which are connected with similar processes of other cells. In this way a reticulum is formed, the meshes of which are filled with round cells. Both the reticulum, with its spindles, and the round cells are embedded in a homogeneous intercellular substance.

The vessels ascend to the mucosa through the muscular interstices, and end beneath the mucous surface in fine capillary loops. All the changes to which connective tissue and epithelium are liable may of course occur in the uterine mucosa; and as this tissue very closely approaches adenoid tissue, the changes to which it is liable are very like, both in microscopic appearance and in their clinical course, those which lymphatic glands are subject to.

There are certain cases of cellular outgrowths from, or vegetations of, the uterine mucous-membrane, the nature of which it is very difficult to decide; for of two cases, the scrapings of which may appear precisely similar on microscopic examination, one may recover at once or after repeated curetting, while the other goes on from bad to worse, until death ensues.

Two cases, as examples of the kind of growths which we may expect to find in the uterine mucosa, follow:—

Case I. relates to a woman suffering from metrorrhagia. The mucous-membrane was covered with fungous masses, which showed the following structure: The vessels were thickened and surrounded by lymphoid and spindle-shaped cells, which were increased in numbers and size. In some parts there was a close reticulum of thickened trabeculæ, each mesh of which for the most part was filled by one cell. The glands were also changed, the lumen being widened, and the cells enlarged and altered in shape. At some parts the epithelium had broken through the limits of the glands, and was invading the stroma. The author calls this growth adeno-sarcoma. This is one of the many varieties of sarcoma that may occur. How often the ordinary forms may present themselves is at present hardly known.

Case II. is that of a lady who suffered from profuse hæmorrhages from the uterus. A tumour extended from the cavity of the uterus into the vagina. This was removed, but the mucosa afterwards became fungous, and gave rise to a large tumour, which presented the structure of an adeno-myxo-sarcoma, there being spindle-shaped and small round cells embedded in a clear gelatinous matrix. The glands were distended, producing cavities lined by epithelium, whose cells were enlarged, and at parts proliferating. In some instances this invaded the stroma, as in Case I.

The author then goes on to explain the various possible growths of the mucosa, and their development. The glands may grow and increase in numbers, without the stroma participating, producing *adenoma*. If the growth invade both the mucosa and muscular wall, it produces *adenoma malignum*. In some cases the epithelium fills glands and invades the stroma, producing *cancer*, the interglandular tissue at the same time showing signs of overgrowth. In sarcomatous disturbances it is the interglandular tissue which takes the most active part, the glands being altered also in various ways. The true papilloma is very rarely met with in the uterine mucosa.

After touching upon the question as to whether epithelium can arise from epithelium only, or whether it may not be produced from connective tissue, the author adds a few words upon the prognosis and therapeutics of sarcomatous growths. Prognosis would be favourable if after repeated curetting the condition improved. If on the other hand the patient's constitution break down, and hæmorrhages continue, it is naturally bad. There can be but one prognosis for true sarcoma. At present the patient (Case II.) is (three months after operation) in such a condition that death will ensue. The value of curetting is doubtful, and total extirpation of the uterus is the only treatment which offers success, and even then secondary growths will often shortly lead to inevitable fatality.

PERCY J. BAILY.

# REPORT ON DISEASES OF CHILDREN.

1. **Bohn** (Königsberg).—ZUR ÄTIOLOGIE DES EKZEMS IM FRÜHEN KINDESALTER. (On the Etiology of Eczema in Early Childhood.) *Jahrbuch für Kinderheilkunde*, Bd. xx. Hft. 1.
2. **Silbermann, Oscar.**—UEBER SEPTISCHE PNEUMONIE DER NEUGEBORNEN UND SÄUGLINGE. (On the Septic Pneumonia of New-born Infants and Sucklings.) *Deutsches Archiv. für klinische Medicin*, 12th Dec. 1883.
3. **Duckworth, Dyce.**—ON SCARLATINAL DROPSY WITH LITTLE OR NO ALBUMINURIA. "St. Bartholomew's Hospital Reports," vol. xix. 1883.
4. **Moore, Norman.**—ANEURISMS IN CHILDREN. *Trans. Pathol. Society*, vol. xxxiv. 1883.
5. **Sankey, W. H. O.**—THE TREATMENT OF HOOPING-COUGH. *Birmingham Med. Review*, Feb. 1884.

1. **Bohn on the Etiology of Eczema in Early Childhood.**—The author says that, hitherto, these cases have generally been considered scrofulous. This view, although sometimes correct, he thinks is by no means generally applicable.

The disease usually attacks the head and face of infants during the first six or eighteen months; and its occurrence at this period of life would rather point, the author believes, to its not being of a strumous nature, as scrofulous manifestations seldom occur at such an early age Rickets, he thinks, has little to do with its etiology. A striking contrast is presented generally between children who are the subjects of this disease, and those who are strumous or rachitic, in the fact that they are usually well nourished, fat, and healthy-looking. One great peculiarity he has observed is sluggishness and torpidity of the bowels, with the passage of lumpy, hard fæces either of a dark yellow, yellowish-white, or sometimes quite pale colour. The skin is dry, rough, and cracked, and often covered with a papular or papulo-vesicular eruption. The children are polysarcous, and often found, on post-mortem examination, to have *fattily-infiltrated* livers. The full fatty development usually coincides with the height of the eruption. At the end of the first or beginning of the second year, when important nutrition changes are going on, and the nitrogenous tissues are being rapidly built up, and muscular development taking place, we find the adiposity gradually tends to disappear, and with it the eruption. If this view be correct, it guides us in regard to the important principles of the therapeutic and dietetic management of the disease. The main indications are to supply food which will not readily produce fat, and at the same time attend to the proper regulation of the bowels. The food supply must be carefully regulated, both as regards quantity and quality. If the child is at the breast, a wet nurse should be procured. In artificially-reared infants, we are in a better position, he thinks, to regulate the nourishment according to the principles laid down. Along with cow's milk, or, in older children, as a substitute for it in whole or in part, we may use farinaceous foods, soups, cocoa, or gruel of barley. Grated or finely-powdered meats are also useful. Next in importance is attention to the bowels. By the suitable use of purgatives a cure may often be effected. Simple water enemata are frequently of service. Syrup of rhamnus catharticus may be tried. Externally linimentum calcis, boracic or lead, or white precipitate ointments

Arsenic is undoubtedly of service in these cases. Cold baths are most efficacious. Warm baths or saline bathing is generally hurtful.

The localisation of this disease in the head and face coincides with the general condition—arterial congestion, consequent upon the rapid development of the skull and its contents at this period of life.

2. **Oscar Silbermann on the Septic Pneumonia of New-born Infants and Sucklings.**—Reference is made to most of the writings on this subject during the last forty years. Dr. Schindler, in the *Oesterreicher Wochenschrift*, No. 41, 1845, was the first to direct attention to it. Since then a good deal has been written on the subject in Germany and France. The author shows that this condition in infants occurs chiefly during epidemics of puerperal fever, and the drift of the paper is intended to point out the close causal relation which the maternal condition bears to the infantile morbid state. Twelve illustrative cases are given, and put in a tabular form for the sake of convenience. The paper ends with the following conclusions:—

(1.) The septic pneumonia of new-born children and sucklings, which is accompanied by tracheo bronchitis, is catarrhal and infective in its nature.

(2.) It is caused by the aspiration of putrid liquor-amnii, or foul genital secretions, or through the inspiration of the intensely infective breath of the mother.

(3.) Septic pneumonia of children is often associated with pleurisy, seldom with affection of other organs, in contrast with other septic conditions of infants which are accompanied by multiple focuses of disease.

(4.) The alveoli and bronchial tubes in fatal cases are found to contain masses of bacteria.

(5.) The blood in septic pneumonia shows abundance of white and some broken-down red corpuscles.

(6.) Icterus is not a common accompaniment of the disease.

(7.) The date of occurrence of septic pneumonia is generally from one to two days after delivery.

(8.) The fatal termination from the commencement generally dates three or four days after delivery.

(9.) The rapid infection of the lungs of new-born infants is favoured by closure of the glottis, and the contraction of the larger and smaller bronchi.

(10.) The great extension of the septic process in the lungs is favoured by the rapid epithelial changes, and the narrowness of the smaller bronchi, and the feeble breathing and weak respiration of young infants.

3. **Dyce Duckworth on Scarlatinal Dropsy with little or no Albuminuria.**—Dr. Duckworth relates a case of scarlatinal dropsy, in which the urine only contained occasionally a mere trace of albumen. He quotes extensively from the literature of the subject, and mentions, in abstract, an interesting case of Bartel's, in which a boy died of parenchymatous nephritis after scarlatina, and albumen was found occasionally absent from the urine. He concludes the notice by stating, that the only instances of renal dropsy he has met with where albumen was absent from the urine, were scarlatinal in their nature. This points, he thinks, to the conclusion that there is something specifically peculiar in these cases, probably depending on the scarlatinal poison. This may act, he says, "either by the special involvement of the glomerular system in the kidney, whereby albumen is withheld from the urinary secretion for a time, or by inducing some peculiar blood change

in which ordinary albumen is not separated in the kidneys, but some variety of it is yielded in its stead; or again, it may be, that certain tracts of the kidneys cease to secrete in the acute stages, and others, not yet involved, continue to produce urine as yet unimpregnated with albumen. As has been shown, in every case of this nature that tends to recover, the urine ultimately becomes albuminous, and the ordinary characters of the disease are manifested."

4. **Norman Moore on Aneurisms in Children.**—Two interesting cases are related of the occurrence of aneurisms in young children. In neither did the dilatation of the arterial tubes depend upon primary disease of the coats of the vessel, as we find in the degeneration and other changes inducing similar conditions in adults. The first case was that of a girl aged seven, who had suffered from rheumatism, as a result of which growths were formed, some partly calcified, on both mitral and aortic valves. The aneurism, which was the size of a hazel-nut, was situated in the right common iliac artery. The sac was filled with laminated fibrin. The coats of the vessel were normal, with the exception of a slight cellular infiltration beneath the endothelium. There was no roughness of the endothelial surface or other evidence of arteritis. The aorta and all the other arteries were normal. The author believes the aneurism was due to an embolism carried from the aortic valves, dilatation taking place at the sight of plugging. The second case was that of a girl aged five years, with growths on the aortic, mitral, and tricuspid valves, the patient having died of tubercular meningitis. The aneurism in this case was on the posterior wall of the aorta. The end-arterial coats were not healthy, and showed abundant evidence of inflammation, which, doubtless, had been set up at the same time as the valvular endocarditis.

In each case, then, we have an example of a different mode in which aneurism may be produced in a previously healthy artery—(1) by the distension of an embolus; (2) by local endarteritis.

5. **Sankey on the Treatment of Hooping-Cough.**—In a short paper he relates his experience, after forty years' practice, of the value of carbonate of iron in hooping-cough, this treatment being based on the theory of the neurotic origin of the disease as distinct from what the author terms the bronchitic. He found the remedy uniformly successful.

JAS. CARMICHAEL.

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## ORIGINAL ARTICLE.

### CASE OF INTUSSUSCEPTION WHICH RECURRED AFTER REDUCTION: RECOVERY.

By T. R. RONALDSON, M.B., F.R.C.P.E., &c.

IN perusing the literature and records of discussions bearing on obstruction of the bowels, the difference of opinion on two points is specially noticeable—firstly, as to whether abdominal section should be had recourse to; and, secondly, as to the time and method of operating in such cases. Until sufficient material has been collected for the laying down of definite rules for treatment, so far as that is possible, in this very anxious class of diseases, it would be well to record all cases bearing on these questions. This is my excuse for putting on record the following case:—

Mary S., æt. 5½ years, was first seen on 3rd October, 1883. She complained of intermittent pain over the abdomen. During the spasms of pain, which lasted for a minute or two, the bowels rumbled and gathered into prominent coils, apparent to the eye and touch. The tongue was furred and dry; there was no vomiting; the bowels had acted freely after a dose of castor oil, administered by the mother previous to my visit. Between the attacks of pain, when the abdomen was soft and easily examined, nothing abnormal could be detected either by external palpation or by examination per rectum. The temperature never exceeded 100°F.

*History of present illness.*—Two or three days before I saw her she had eaten some currant-cake, and since then she had had abdominal pain. This was the only apparent cause of her illness.

*Diagnosis.*—Gastro-intestinal catarrh, and colicky pain from the presence in the intestine of some irritating substance, probably currants.

*Treatment.*—As the bowels had already acted freely, I contented myself with ordering distending enemata; laudanum internally, as required for pain; poultices externally; careful diet.

The further progress of the case, up to 19th November, was as follows:—In a day or two some currants were passed in the intestinal evacuations. From time to time under treatment,—which consisted of castor oil or enemata, or both; poultices; tinct. opii and tinct. belladonnæ;

stomachic powders of rhubarb and soda; careful dieting, as I judged best to meet the varying condition of the patient,—the symptoms subsided, the pain ceased, the tongue became clean, the appetite fairly good, the abdomen soft, and the bowels acted spontaneously. Every now and then, however, especially when there had been any freedom in eating, similar attacks came on, with loss of appetite and occasional vomiting.

On two occasions there was comparative dulness on percussion in the left flank; but at no time could any hardness or tumour be detected on examining the abdomen. As the child gradually became emaciated and as there never was pain on palpation or rectal examination, no anæsthetic was required for a satisfactory examination. I could not satisfy myself that there was any lesion present beyond gastro-intestinal catarrh; and yet I never saw in such catarrh, colic so severe, so repeated, and so predominant a symptom. I could only suspect the possible existence of some abnormality or lesion interfering with the natural progress of the intestinal contents. The slight dulness on percussion in the left flank, noticed on two occasions, disappeared without any special evacuation of fæces. There was no history of a previous attack of peritonitis; and the absence of all continued pain, or tenderness on pressure, during the present illness, was not consistent with the occurrence of any local inflammation, which could have interfered with the lumen of the gut by the formation of adhesions or bands of fibrous tissue. Being in doubt as to the diagnosis, I could only, by great care in dieting, and attention to the regular evacuation of the bowels by gentle measures, seek to prevent all intestinal irritation; and by the free use of sedatives, seek to allay the violence of the peristaltic movements when the colicky attacks came on, as I often feared that in consequence intussusception would sooner or later occur.

During the afternoon of 19th November, one of her usual attacks of intermittent pain came on. Next morning, between 3 and 4 A.M., she for the first time passed a stool of mucus and blood, and began to have a frequent desire to defæcate, the only result being small evacuations of mucus streaked with blood. When seen by me about 1 P.M., 20th November, the temperature was normal, pulse quick, tongue furred in centre, vomiting absent, pain kept under by tinct. opii. There was present a distinct elongated tumour in the left ilio-lumbar region, and on examination per rectum this tumour was easily felt to extend into the rectum and to have all the characters of invaginated gut. There could be no doubt that, secondary to an attack of colic, intussusception had now resulted. At 3.30 P.M., Drs. Burn-Murdoch and Bannerman kindly saw her with me. Both agreed with me as to the diagnosis, and as to the treatment which should be adopted. We decided to try under chloroform to reduce the invaginated bowel by abdominal taxis and enemata, and should we fail in this, to open the abdomen. If we had failed to reduce the intussusception by manipulation and enemata, I had no fear but that on opening the abdomen we would have easily succeeded in attaining our object; but I did fear lest, after succeeding in this, we should fail to find any cause for the colic, and that in consequence we would have no guarantee that the invagination would not recur.

Chloroform, preceded by a dose of ten drops of laudanum, was administered. On introducing two fingers into the rectum, the tumour could easily be pushed up and moved about, but abdominal taxis by bi-manual manipulation failed to do good. A copious warm water enema was then administered, and failed also. Another was given, the child's hips this time being raised up, and without difficulty the invaginated gut was effectually disentangled, and all trace of tumour removed. Tinct. opii. to be given as required to prevent all pain and straining; water, barley-water, or a little chicken-tea for diet. When I saw her next day, 21st November, I found that she had had a quiet night,—a liquid brown stool with no blood had been passed in the morning,—temperature normal, no pain. On examining the abdomen, the state of matters was exactly as it had been the day before. The intussusception had recurred. I reduced it as before. On examination after reduction, I detected a small tumour, about the size of a pigeon's egg, freely movable, high up on the left side about the splenic flexure of the colon. When seen a few hours afterwards she was quiet and free from pain; had had no straining; fulness present in left ilio-lumbar region; no tumour in rectum, but some fæces present, solid but soft. 22nd November, had passed a quiet night. After rectal examination yesterday, some soft fæces had been passed. Temperature normal; no pain; abdomen slightly distended; a degree of dulness on percussion over left flank; on bi-manual palpation a feeling of greater fulness in left side than in right, and as if the descending colon could be felt and defined; no invagination present, but some soft solid fæces present in rectum.

To get warm water enema, tinct. opii. by mouth as before, tablespoonful doses of Benger's self-digestive food and beef-tea.

The fæces referred to had no appearance, either as to quality or quantity, of having lain in the bowel for more than the usual period of time. After this the child rapidly improved, and has had no return of her abdominal troubles. Nothing abnormal can be detected in the abdomen, and she has grown plump and strong.

*Remarks.*—The points of interest in this case seem to me to be the following:—The difficulty of coming to a satisfactory conclusion as to the cause of the colic attacks, which recurred frequently during a period of seven weeks; the evident dependence of the intussusception on the colic; the advantage of inverting the patient during the administration of enemata; the recurrence of the invagination after its reduction.

I hesitate to give a decided opinion as to the cause of the colic attacks. It was removable without operation, as shown by the progress of the case. I do not think it was constipation. The small tumour mentioned as being present on 21st November, disappeared (it may have been the beginning of an invagination which underwent spontaneous reduction). By exclusion I can only fall back upon repeated attacks of catarrh as the probable cause. I have no hesitation in advocating the line of treatment we agreed on following. I believe that, had we failed by combined inversion and the use of enemata to reduce the intussusception, the little patient would have had the best chance of recovery from abdominal section, and the reduction of the invagination from within. The tolerance of surgical interference which the healthy peritoneum shows, is an argument in favour of early adoption of abdominal section in the treatment of intussusception when other measures of relief have failed, and against allowing the case to drift. The possibility of its being cured after sloughing and expulsion of the invaginated portion of gut, may be looked upon as a last hope when a case is seen late, but surely not as a last resource when it is seen early. At the same time, this case emphasises the need of the full administration of opiates, lest after abdominal section and reduction the lesion should recur, and it may even point to an argument against the surgical procedure of opening the abdomen. It also points to the advisability of treating attacks of colic in young children speedily and effectively.

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## REPORT ON PATHOLOGY.

1. **Cornil.**—Histological Lesions of the Kidney in Albuminous Nephritis. *Practitioner*, January and February, 1884.
2. **Cahn.**—Gastritis Diphtheritica mit Acuter Gelben Leberatrophie. (Diphtheritic Gastritis with Acute Yellow Atrophy of the Liver.) *Deutsches Arch.*, vol. xxxiv. p. 113.
3. **Harris, V.**—On the Precipitants of Albuminous Substances in the Urine. "St. Bartholomew's Hospital Reports," xix. p. 73.
4. **Birk.**—Ein interessanter Fall von Leukämie. (An Interesting Case of Leucocythæmia.) *Petersb. Med. Woch.*, 1883; *Fortschriter der Med.*, 1884.
5. **Gulliver, G.**—Two Cases of Ulcerative Endocarditis following an Attack of Acute Pneumonia. "St. Thomas's Hospital Reports," xii. p. 55.
6. **Underhill, A. S.**—A Fatal Case of Spasmodic Asthma. *Birmingham Medical Review*, Feb. 1884.
7. **Henoch.**—Nephritis nach Varicellen. (Nephritis after Varicella.) *Berliner klin. Woch.*, 14th Jan. 1884.
8. **Sheldon, T. S.**—Minute Hæmorrhages in the Pia Mater. *Bristol Medico-Chirurgical Journal*, Dec. 1883.
9. **Duckworth, Dyce.**—On Scarlatinal Dropsy with little or no Albuminuria. "St. Bartholomew's Hospital Reports," vol. xix. p. 321.
10. **Baumgarten.**—Ueber die Uebertragbarkeit der Tuberculose durch die Nahrung, und über Abschwächung der Pathogenen Wirkung der Tuberkelbacillen durch Fäulnis. (On the Transmissibility of Tuberculosis by Food, and on the Diminution of the Pathogenic Action of Tubercle-Bacilli by Putrefaction.) *Centralb. f. klin. Med.*, 12th January, 1884—(*original-Mittheilung*).
11. **Ord, W. M.**—On Some Clinical Aspects of Glycosuria. "St. Thomas's Hospital Reports," vol. xii. p. 1.

**1. Cornil on Histological Lesions of the Kidney in Albuminous Nephritis.**—In these communications Cornil gives a very concise account of his views on the pathological histology of albuminous nephritis, his views agreeing substantially with those of most pathologists in this country. He holds that it is impossible to maintain any sharp division between parenchymatous and interstitial nephritis, the lesions being associated, one or other predominating more or less; and he concludes that if pathologists cannot divide Bright's disease into these two distinct groups, there can be little basis for the division too easily admitted into clinical medicine.

Scarlatinal nephritis he looks upon as usually transient, but of great intensity, consisting principally in inflammation of the glomeruli, with cloudy swelling and granularity of the epithelium in the convoluted tubules, and the presence in the tubules of exudation, casts, &c. This may pass into a chronic condition, and assume all the characters of "large white kidney."

From this he passes on to consider the various forms of "permanent parenchymatous nephritis," and takes up first "acute permanent nephritis." In this the kidney may be enlarged, congested, and the venæ stellatæ may be dilated, the surface may be marbled with white, and the cortex yellowish red on section. There may, however, be no naked-eye change. Microscopically, glomerulitis is observed; proliferation of any or all the cell-constituents of the glomerulus. No mention is made of small cell exudation around interlobular vessels, and outside the glomeruli. The epithelium of the convoluted tubules becomes vesicular, proliferates, and desquamates; there is exudation into the tubules, with formation of casts. Little alteration takes place in the epithelium of the straight tubules. Fatty changes in the epithelium are probably consecutive to changes in the circulation, and are seldom present in the acute stage.

Of chronic permanent nephritis he describes several forms. The "large white kidney," the result of syphilis, alcoholism, cold, tuberculosis, &c., may be little larger than normal or doubled in size and weight, is yellowish-white, pasty or flaccid; on section, the pale cortex contrasts strongly with the red medulla, and contributes nearly all the increase in size. Phlebitis of the renal vein may be present. Microscopically, the chief changes are fatty degeneration of the epithelium; there is no desquamation, or if cells fall off, new cells remain attached to the basement membrane, which is not laid bare. The fatty change may extend to the endothelium of the glomeruli, and even to the connective tissue between the tubules. Interstitial nephritis is also present, there being "infiltration of round cells between the vascular loops of the glomeruli along the vessels." There are almost always some glomeruli which are completely fibrous and atrophied.

In amyloid degeneration the changes, apart from the waxy disease itself, are the same as in other forms of albuminous nephritis; it is "nothing but Bright's disease, complicated by a special alteration of the vessels and membranes." He allows that there are exceptional cases of "local amyloid degeneration" where the lesion of the cells are absent. These it would be reasonable to look upon as being in an early stage of waxy disease, which probably causes degeneration of epithelium and interstitial changes as it increases. He also mentions that amyloid degeneration sometimes accompanies interstitial nephritis, with atrophy of the kidney and the formation of colloidal cysts.

The "large white granular kidney" presents small yellowish-white granulations on its surface, surrounded by reddish rings. The venæ stellatæ are dilated. On section the "granulations" are seen to pass into the cortex as yellowish-white pyramids. Under the microscope these are seen to be formed of tubules normal in diameter or dilated, while the tubules surrounding them are atrophied and their epithelium fatty. Cornil recommends transverse sections of the cortex as calculated to give a good idea of the relation of these "granulations" to the lobules of the cortex. The dilated tubules in the centre are mostly those of the pyramids of Ferrein, while numerous glomeruli are seen in the fibrous tissue at the periphery, along with compressed and atrophied convoluted tubules.

In concluding, Cornil says,—and it is well to quote his own words,—"In the purest types of parenchymatous nephritis, we almost always find well marked lesions of the connective tissue, and in particular of the glomeruli (sub-acute or chronic glomerulitis terminating in fibroid atrophy, thickening of Bowman's membranes, and of the membranes of the tubules).

"Nevertheless, there are cases in which the lesions affect the epithelium exclusively, and these may occur even in gout, which is generally considered to be one of the most frequent causes of small contracted kidney."

In this number of the *Practitioner*, Cornil commences the consideration of interstitial nephritis; but as it is to be continued in another number, notice of it will be reserved.

Charles Kennedy.

2. **Cahn on Diphtheritic Gastritis with Acute Yellow Atrophy of the Liver.**—An extension of the diphtheritic process to the coats of the stomach has been again and again observed, but there is no case on record in which diphtheria was accompanied by acute yellow atrophy of the liver. The patient whose case forms the subject of the present article, was a girl of seventeen, who was suddenly seized with sore throat. About a week after the pain *in the* throat commenced, the skin assumed a yellow tinge, she became slightly comatose, and was at once brought to the hospital. On admission the temperature was found to be high (104°F.). There was a patch upon one tonsil; the skin was very icteric; the blood normal; the urine was dark brown, from the presence of bile pigment, but contained no leucin or tyrosin. There was a slight *trace* of albumen present, and the urea was in fair quantity. There was considerable tenderness over the liver, and the hepatic dulness was found to be increased. After some days it was observed that the liver had diminished in size markedly, that the spleen was enlarged, and that the skin was scattered over with purpuric spots. The patient gradually sank. On post-mortem examination it was found that in addition to the diphtheritic affection of the fauces, which had spread down to the stomach, there was acute yellow atrophy of the liver. In many respects the case bore a close resemblance to one of phosphorous poisoning, but chemical analysis of the fæces and vomited matter showed that no trace of that substance was present. The case differed also from one of ordinary idiopathic acute yellow atrophy, by reason of the constant high temperature which was invariably present after the symptoms had *fully* developed. In spite, however, of this peculiarity in the case, there was no difficulty in diagnosing during life the presence of acute yellow atrophy. The jaundice, the purpuric spots, the cerebral symptoms, and the tenderness over the region of the liver, all spoke in favour of such a diagnosis, which was rendered absolutely certain by the observation that the hepatic dulness diminished in size as the case went on. The absence of leucin and tyrosin from the urine in this case does not go against the diagnosis of acute yellow atrophy, for it is well known that this may be observed even in highly characteristic cases of that disease.

This rare combination of diphtheria and acute yellow atrophy of the liver is believed by Cahn to be due to the fact that the diphtheritic process affected the stomach. The close vascular connection between stomach and liver by means of the portal system would account for the involvement of the latter organ.

3. **Harris on the Precipitants of Albuminous Substances in the Urine.**—Dr. Harris has examined into the delicacy of a very large number of albumen precipitants, new and old, and has come to the conclusion that the three tests—picric acid, sodium tungstate, and potassium ferro-cyanide—are the most delicate, with a preference in favour of picric acid. This last-named test has been recently brought into notice by Dr. George Johnson, and although very delicate has certain disadvantages. It precipitates peptones as well as albuminous substances, and its colour somewhat interferes with the ready detection of slight albumen clouds. It is, moreover, somewhat expensive. On account of these disadvantages, Dr. Harris comes to the conclusion that sodium tungstate and potassium ferro-cyanide are the best tests for albumen in urine. He finds in regard to sodium tungstate that the formula originally recommended by Dr. Oliver is the best—viz., equal parts of saturated solutions of sodium tungstate and citric acid.

4. **Birk on Case of Leucocythæmia.**—The example of leucocythæmia here described differed materially in many respects from the ordinary clinical picture of that disease. The case was complicated with high fever, weakness, headache, and great swelling of liver and spleen, so that the diagnosis of intermittent fever was adopted, until it appeared that the administration of large doses of quinine was useless. The swelling of the lymph glands and sternal pain which then set in pointed to affection of the blood-forming glands; and an examination of the blood exhibited the well-known features of leucocythæmia, the proportion of white to red corpuscles in the field being one to three. The white corpuscles were smaller than the red, contained one or more nuclei, and were shrunken at their edges. In the further progress of the case, exophthalmos of both eyes came on, along with increasing headache, and leading to complete blindness. Both testicles became swollen and painful, double hydrothorax was established, and œdema of the lower limbs and ascites both appeared before death took place. On post-mortem examination, it was found that the exophthalmos was caused by tumefied lymphatic nodules in the posterior portion of the orbit. On examining the blood removed from the body, Birk found that there was deficiency of the fibrin ferment; and since this ferment is furnished by the white corpuscles, he concludes that in leucocythæmia these must be imperfectly developed, which accounts for their small size and shrunken appearance in the present case.

5. **Gulliver on Ulcerative Endocarditis following Acute Pneumonia.**—The two cases upon which this article is founded present a considerable similarity. Both were healthy men, and both had an attack of acute pneumonia, affecting the right apex. After the pneumonia had subsided there was in each case a short and deceptive convalescence, after which acute endocarditis set in with rigors, and proved rapidly fatal. It seems possible to regard the latter affection as the result of further extension of the action of the micrococci of pneumonia.

6. **Underhill on a Fatal Case of Spasmodic Asthma.**—The case here related was that of a married woman, seven and a-half months pregnant, who was seized suddenly one night with very great difficulty of breathing, which lasted for three hours and then completely disappeared. On examination, nothing was noticeable about her chest, the stethoscope only revealing a few mucous râles. She could do her morning's work. Her description of last night's sufferings led Dr. Underhill to suspect "globus hystericus" as the cause

of the dyspnœa. The following night a second attack came on, lasting two hours. On the third night she escaped an attack, but afterwards each night was marked with a spasmodic attack, which came on usually after she had slept about two hours. This state of matters continued for a week; but when, on 27th December, Dr. Underhill was hastily summoned at night, the neighbours thinking she was dying, he found her sitting propped up in bed with purple anxious face, cold extremities, feeble pulse, about 124, and all the symptoms of impending death from dyspnœa. On careful auscultation there were a few mucous râles, large patches where no respiratory murmur could be heard at all, and a feeble laboured heart's action. In about four hours she rallied, and got some sleep, and during the day became much better; but again in the night another attack came on, which proved fatal the following morning. In the interval between the attacks, her urine was found to be copious and free from albumen; her bowels acted regularly; she was always perfectly conscious; the only pain she felt was associated with the feeling of suffocation. During the last six hours of her life she felt as if labour was coming on, and some discharge escaped from the vagina. There was contraction of the uterus, but there was no dilatation of the os. She complained very much of the movements of the fœtus, and her nurse remarked that there was more motion when the attacks of dyspnœa came on.

Dr. Underhill believes her symptoms to have been due to one of those peculiar neuroses connected with puerperal state, and that the movements of the fœtus acted as reflex irritants, giving rise to the asthmatic symptoms.

It is generally believed that attacks of pure asthma are never fatal; that before the dyspnœa has reached such a degree as to endanger life, the spasm relaxes. In the present case it is exceedingly to be regretted that no post-mortem examination was made. Without actual evidence that no organic disease existed, it is a little difficult to conceive that this case was one of pure spasmodic asthma.

7. **Henoch on Nephritis after Varicella.** — Henoch here narrates four cases of varicella in which nephritis appeared in from eight to fourteen days after the first appearance of the rash. In all these cases the rash was profuse, and there was considerable fever. The albuminuria was accompanied by well-marked œdema. In three of these cases a complete cure was affected in a few weeks by means of hot baths and ordinary diuretics, but in one case the patient was attacked with pulmonary œdema and died. On post-mortem examination the heart was found to be hypertrophied, an observation which is of interest in relation to the article by Riegel, of which a summary appeared in No. 17 of this Journal.

8. **Sheldon on Minute Hæmorrhages in the Pia Mater.**—The clinical history of the patient referred to in this article is unfortunately not given with any detail. She was suffering from melancholia, and was very suicidal. She was attacked with enteric fever, and died of an intercurrent pneumonia. On the day of her death she became very restless and delirious, and constantly made sweeping movements of the arms above the head. On post-mortem examination, the brain weighed 47½ oz. The Pacchionian bodies were largely developed. The convolutions were intricate but somewhat atrophied, the sulci being wide and marked out under the arachnoid by excess of fluid. There was a remarkable difference in the surface appearance of the hemispheres; on the left side the pia arachnoid was thin, transparent, and marked only by injected meandering vessels; on the right side the membrane over the superior and

middle frontal convolutions, the upper half of the ascending frontal and parietal gyri, and part of the lower parietal lobule, was opaque, soft, reddish, and thickened. On removing it the grey matter below was soft, highly congested, and on the slightest provocation came away with the pia mater. The affected membrane was, moreover, marked by numerous conspicuous bright-red dots, about the size of the head of a small pin, or less. Microscopic examination proved them to be spherical masses of red blood-corpuscles, abutting, like bosses, against the wall of the vessels; they were frequently arranged in pairs, the extravasation having occurred at opposite points in the same section of a vessel. There was no other noteworthy appearance in the brain.

9. **Dyce Duckworth on Scarlatinal Dropsy with little or no Albuminuria.**—An example is here given of the rare condition in which, after an attack of scarlatina, there was considerable dropsy with a small amount of albuminuria. The patient was a child of nearly five years. He had had scarlet fever five weeks before being brought to the hospital. On admission, there was considerable anasarca, urine suppressed and lungs œdematous. After three days of treatment, the urine began to flow copiously and was collected. It was found to have a specific gravity of 1027, and to contain urates; but no blood was present in it, and there was only a faint trace of albumen. Microscopically, there were no renal elements discoverable. Even this faint trace of albumen disappeared in two days more, although the temperature had risen to 104·5° and the œdema continued. After this the case improved steadily, the dropsy gradually disappearing; but at no time was there any further appearance of albumen in the urine.

Dr. Dyce Duckworth appends a very interesting review of the literature of this somewhat obscure subject. He believes that since the only cases of nephritis with œdema in which no albumen is present in the urine are scarlatinal in their origin, it is fair to conclude that there is something specifically peculiar in these cases, depending probably upon the scarlet fever poison. He believes that this may act either by the special involvement of the glomerular system, whereby albumen is prevented from transuding into the urinary secretion, or by inducing some peculiar blood-change in which ordinary albumen is not separated in the kidney, but some variety yielded in its stead. Another supposition which Dr. Dyce Duckworth puts forward is, that certain tracts of the kidneys cease to secrete in the acute stages, while others not yet involved continue to yield non-albuminous urine.

10. **Baumgarten on the Transmission of Tuberculosis in Food.**—The question of whether tuberculosis may be induced by the consumption of ordinary food when that contains tubercle-bacilli has never been satisfactorily answered. To solve that question, Baumgarten proceeded to experiment as follows: He allowed rabbits to drink fresh milk to which a certain proportion of tubercle-bacilli had been added, and found that, without a single exception, tuberculosis of the intestinal mucous membrane, of the mesenteric glands, and of the liver, followed in the course of ten to twelve weeks. The more of the fluid containing the bacilli which had been added to the milk, the more extensive was the subsequent disease. In the most marked cases, the lymph glands of the neck and under the lower jaw became tuberculous, and occasionally the lungs were found to be also affected. The observations also, however, showed another fact of great pathological interest. In contrast to the ready way in which these animals when fed with fresh milk containing fresh tucercle-bacilli took tuberculosis, was the result when the fluid containing these bacilli was allowed to

stand for a day or two at the temperature of the room before being added to the milk. In these cases, as a rule, no infection was produced; in one or two instances, however, a slight affection was found in the intestine, in which the bacilli were few in number, but which contained very many giant-cells. The fluid which had thus become harmless, or almost so, did not show any evident change in the form or number of the bacilli, and hence it can only be concluded that pathogenic action had become weakened. Former observations had led Baumgarten to suspect that putrefaction diminished the activity of tubercle-bacilli, and it is to this cause that he attributes the results of these latter observations.

11. **Ord on some Clinical Aspects of Glycosuria.**—In this interesting article the author treats of that variety of glycosuria in which the appearance of sugar in the urine is not associated with any marked diuresis. His remarks are founded upon twenty-three cases of that variety in persons over fifty years of age, in whom the glycosuria was not temporary but was persistent under all forms of treatment. In all these instances glycosuria was but a symptom, and never assumed the individual importance which it claims in typical diabetes mellitus. In these twenty-three cases it was found that the glycosuria was associated with four conditions: (1) preponderantly, conditions of nerve disease or disorder, appearing either as probable causes or as associated troubles; (2) gout; (3) errors of diet; (4) albuminuria.

(1.) In twenty cases there were marked indications of nerve disease or disorder. Of these, seven told a story of excessive mental work or anxiety, one became insane, one became hemiplegic, two had symptoms of locomotor ataxia, and two were decided hypochondriacs. Angina pectoris occurred in three cases.

(2.) Gout existed in eight cases, rheumatoid arthritis in one. In two of these cases the sugar in the urine underwent a sudden diminution on the occurrence of gouty attacks. In all these cases and others not distinctly gouty, the urine deposited uric acid.

(3.) In eight cases there was an acknowledgment of over-indulgence in eating, and of these seven admitted to marked alcoholic excess.

(4.) Albuminuria was present in ten cases.

After discussing in detail several of these cases, Dr. Ord goes on to consider the general bearing of this glycosuria of old persons as a whole. He points out that there is but slight polyuria, and that the urinary disorder in them is only secondary. It is, in short, to be looked upon only as a symptom. He thinks that the diminution of the glycosuria in gouty persons during an attack of gout is comparable to what occurs in diabetes during an intercurrent acute inflammation. He is inclined to recognise in this diminished glycosuria a metastasis of the gouty process from the liver to the joints.

In regard to the treatment of such cases of glycosuria, Dr. Ord advises that at the commencement the dieting should be that of typical diabetes. This is the first test as to whether the glycosuria is the result of assimilative failure or of temporary irritation of the liver. If there be any evidence of mischief in the nervous system, such remedies as the bromides, the iodides, arsenic, &c., may be advisable. In gouty and dyspeptic cases, saline aperients are most useful, Carlsbad water being the best. The value of regular muscular exercise is very great in such cases.

J. Graham Brown.

EDINBURGH CLINICAL JOURNAL.—Feb. 23, 1884.

# *MEETING OF SOCIETY.*

## GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

### DISCUSSION ON ALBUMINURIA: ITS PATHOLOGY AND CLINICAL SIGNIFICANCE.

*On 12th and 19th February.*

THE first of a series of meetings for the discussion of Albuminuria was held in the Faculty Hall, Glasgow, on Tuesday, the 12th February. From the promises held out by the discussion at the first meeting, this subject will receive as full and careful treatment as did the now famous discussion on Phthisis Pulmonalis.

The greatest interest has throughout been taken in the subject, and those in authority in the Society are to be congratulated on the renewed success attending their efforts to bring together both men and matter. Such efforts will be surely rewarded with the knowledge that by such meetings the medical world will gain not only a more extensive, but a more accurate grasp of the subject of albuminuria.

The discussion was opened by Dr. **NEWMAN**, who took up the following questions:—

1. Why does the urine not normally contain albumen?
2. What are the renal changes associated with albuminuria, and how do they explain the absence of albumen from the urine in health, and its presence in disease of the kidney?

After defining the meaning of the term albuminuria to be presently adopted, as connected only with organic lesion of the kidney, he gave a short resumé of the histology of the kidney, calling special attention to—(1) the direct manner in which the blood is conveyed to the glomerulus, and (2) the small size of the efferent vessel, and the extensive capillary and venous systems through which the blood has to pass after leaving the malpighian body before it reaches the renal vein.

He also dwelt at some length on the lymphatic system of the kidney, and pointed out that in desquamative nephritis the lymphatic spaces are dilated, whilst in interstitial nephritis they are diminished in size by the inflammatory products.

The effects of nerve section and stimulation were then gone over rapidly, and their relation to arterial tension in the kidney, and it was pointed out that the general tension is usually increased quite as much, if not more, than in the renal arteries. Bowman's and Ludwig's theories, Dr. Newman contended, were quite insufficient to explain the facts connected with albuminuria. The power of the mucous-membrane of the bladder to absorb albumen was insisted upon, and the possibility of the presence of a similar power in the epithelium of the tubules.

A couple of cases of nephritis—one of subacute parenchymatous nephritis, and one of the chronic interstitial form—were described, and served to illustrate the following conclusions: That in both forms there is increased tension in the glomerular tuft due to capillary obstruction; that in the blood-vessels and tubules there are two fluids, one alkaline, the other (in the tubules) acid; these fluids obeying the law of osmosis, a strong alkaline solution acts the positive part, the weak acid solution causing the negative osmosis. This fact, taken in connection with the enlarged lymphatics in the more acute form, and the diminished size of the lymphatics and increased distance of the vessels from the tubules in the more chronic form, Dr. Newman held would account for the difference in the quantity of fluid excreted in the two forms. In the acute form of nephritis the greatly diminished amount of fluid was partly due, no doubt, to the obstruction to the outflow of the secretion caused by the casts of various forms.

As to the source of the albumen in the two forms: In the acute form (1), it may come from the malpighian bodies from increased blood-pressure within them, and from diminished resisting power; (2) owing to changes in the epithelium of the tubules, the albumen is not re-absorbed in this position; (3) direct inflammatory exudation as in other catarrhal affections. In the chronic form (1) there is also increased glomerular tension, leading to an increased escape of albumen; (2) altered epithelial elements which no longer re-absorb the albuminous material.

Dr. Newman held, therefore, that the albumen is thrown out from the glomerular tuft into the tubule, but that it is subsequently re-absorbed by the healthy epithelium of the tubules, &c.

Professor WILLIAM ROBERTS, of Manchester, after maintaining that there is a physiological albuminuria and an appreciable albuminuria in persons who are apparently in perfect health, insisted upon the necessity for a more thorough investigation of those conditions. He adverted to the presence of globulin in the neutral saline urine of albuminuria, and its detection by the addition of pure water. He then described a case in which there was retrocession of hypertrophy of the left ventricle in chronic albuminuria, followed by disappearance of the albumen from the urine, from which he argued that the prognosis in albuminuria is not necessarily so grave as we have been accustomed to consider it.

Returning to the consideration of albuminuria in healthy persons, he referred to the experiments of Moxon, Dukes, Saundey, Ultzmann, Leube, and Runeberg, and suggested that we should learn from such cases to be more specific in our classification of cases of albuminuria, dividing them into the following groups: "albuminuria of puberty," "albuminuria of adolescence," "transitory albuminuria," &c.

Dr. ROBERTS then stated that after trying the various methods for the detection of albumen he had come to the conclusion that none of them were so reliable, or even so delicate, as the heat and nitric-acid tests. With heat he found that he could detect one part of albumen in 250,000 parts of water. (In connection with this reaction, he pointed out that not more than one drop of acid per 100 cc. of the diluted fluid should be used, or the delicacy of the test is interfered with.)

In regard to the nitric-acid test he insisted that the delicacy of the test is greatest at the end of thirty or forty minutes, when it will indicate the presence of a fourth of the amount of albumen, which can be detected at the end of one minute.

Professor HAMILTON, of Aberdeen, continuing the discussion, held that the renal capillaries apparently differ from those of the rest of the circulatory tract, in the fact that they do not allow of the passage of serum albumen into the tubules. The limiting power of the layer of epithelium covering the glomerular tuft, as suggested by some authorities, was mentioned, and in connection with this the fact that the shell membrane of the fowl's egg allows sugar to pass through it in one direction only; and similar properties of the skin of the grape, the gall bladder, and Descemet's membrane were described. He held that it was quite possible that if this layer were degenerating or but slightly altered, there might be a temporary escape of the blood albumen, as in alcoholic cases, and in the intermittent albuminuria of pregnancy.

In connection with the albuminuria of valvular disease (chronic venous congestion), he thought that (in spite of the conclusions from experiments of Overbeck and Hermann, that anæmia of the kidney may be the direct cause of albuminuria, and of Runeberg's experiments with the so-called albumen emulsions, and their power of passing through a compound membrane at different pressures) it was due to over-distension of the capillary vessels from backward pressure. He suggested that taking this as a guide, more experiments should be carried on in connection with the renal vein. Professor Hamilton further thought that the obstructed circulation played a most important part in the cirrhotic kidney, which in some cases is extremely congested, this being due to the compression of the capillaries and small veins by the cicatricial tissue. Whenever there is an exacerbation, the quantity of albumen in the urine becomes increased. Between the exacerbations, however, even though the epithelium is apparently greatly disorganised, there may be but a very small trace of albumen in the urine. Where the retardation of the blood-flow is slight, it is sufficient to drive out more water, but it is only when the obstruction becomes more marked during the exacerbations that the serum albumen is driven out. In acute desquamative nephritis the same holds good, but here the fluid is absorbed from the obstructed tubules, and less reaches the bladder.

Professor Hamilton, in connection with the complications of Bright's disease, mentioned his experiments upon the relations which exist between the specific gravity of the various elements of the blood, and such complications as inflammations of serous surfaces, hæmorrhages, and cardio-vascular hypertrophy.

The coloured blood-corpuscles, being of the same specific gravity as the fluid in which they are suspended, are carried along in the axial stream, whilst lighter or heavier bodies, passing to the side of the current and the vessel, on account of their friction, especially at the curves and angles of the vessels, cannot pass so rapidly. When the specific gravity of the fluid is altered, as in Bright's disease, the coloured corpuscles, instead of gliding in the centre of the stream, roll on at the sides. There is in consequence considerable friction, and the force required to keep up the circulation is increased, and the muscles of the vessels and heart become hypertrophied. Where the friction is very great, as in small, tortuous vessels, obstruction and hæmorrhages occur; and where the obstruction occurs over a wide area, pure blood plasma is thrown out.

A series of microscopic specimens, illustrating some of the points in Dr. Newman's paper, was shown in the Council-room.

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This discussion was resumed on Tuesday, the 19th, when Professor Gairdner led off, giving a sketch of the history of albuminuria as interpreted by writers previous to Bright. Coming to Bright, who looked upon albuminuria as a secretion or transudation of blood-serum standing as a token of certain organic changes in the kidney, accompanied by changes in almost all the other organs.

As in the early history of all pathology, too much importance was attached to fatal cases, and too little to the earlier conditions. Except in the case of Bright's disease this error has now greatly disappeared, and even here the prognosis is not considered so gloomy as one has been accustomed to think it; and very ugly-looking cases have terminated in something very like a modified cure, and even a real permanent cure. Professor Gairdner gave an example of advanced waxy kidney, all symptoms of which disappeared after removal of the disease giving rise to the waxy condition, and the patient was restored to health.

He considered that even the type of the disease does not always help in indicating the gravity of the prognosis, for according to Klein there may be interstitial nephritis even on the second day of scarlatina, and before there has been any trace of albumen, though here we have what is looked upon as the most chronic form of Bright's disease. He further thought that there must be a unity of type underlying all forms of the disease, and as the index we should, with Dr. Mahomed, take the total solid excretion of the kidney, not the albumen simply.

He might liken renal albuminuria to pulmonary catarrh, both the conditions leading to disorganising lesions without themselves being disorganising lesions. In the case of pulmonary catarrh, it may be followed by collapse, atrophy tubercle, cirrhosis, disease of the right side of the heart, of the liver, kidneys, and so on, these diseases or conditions fastening on according to the constitution, surroundings, hygienic conditions, &c., of the patient.

He further considered that both albuminuria and pulmonary catarrh may be mild or severe, acute or chronic, simple or complicated, and our ideas and information as to the gravity, varied according as our experience was extensive or limited, and as our cases were fortunate or the reverse.

Still all these forms must be considered far from albuminuria of health, and further from physiological albuminuria, which latter term Professor Gairdner thinks cannot be accepted. Albuminuria may occur in persons who are to all appearance healthy, but so may a loud, non-hæmic cardiac murmur, physical signs of phthisis, &c.; but we should not call these physiological, because to all appearance the patient is healthy in other respects.

To put the matter in a practical form, Would any one of us, having albuminuria for weeks or months in a patient, recommend that patient for insurance without increased premium? Albuminuria, he said, is a danger-signal of the first importance; it is quite possible that there may be no collision, but life under these circumstances is not without additional risks.

Dr. Mortimer Granville, of London, in discussing the clinical significance of albuminuria, wished to call special attention to a number of cases of functional alteration without any organic disease, in which there is still albuminuria, just as there may be ataxic symptoms without any tabes dorsalis. In connection with the cases of so-called physiological albuminuria, quoted the last evening, he remarked that all were either hospital patients who were under treatment for some form of disease or other, or soldiers in times of peace, during which times they are not noted for the regularity of their lives and the health of their bodies.

He believed that there were numerous cases of functional albuminuria which were in great measure due to continued or frequent irritation of the vaso-motor centres, or centres in close connection with them, such as the genital centre. In proof of this he quoted cases of albuminuria (accompanied by great increase of specific gravity) both in young men and in patients in mid-life, where, in addition to this great symptom, there are other and marked symptoms of vaso-motor exhaustion or disturbance, such as flushing or pallor, nervousness and emotionalism, in addition to which the patient is liable to great depression, and leads a solitary and studious life.

He insisted that in all cases the urine should be tested for albumen and urea, and that the urine should be gathered for the twenty-four hours; that such cases as the above should be carefully marked off from those in which there is organic renal disease; and lastly, that there should be, along with the wider use of the urinary test, a greater discretion and discrimination in the interpretation of the results.

Dr. **Mahomed**, of Guy's Hospital, London, speaking of the cause of albuminuria, mentioned venous obstruction, mal-assimilation of foreign albumen by the blood, and the draining of this off by the glomeruli. He then spoke of the close relation which exists between the skin and the kidneys as to the structural and other changes which take place in the two in certain diseases.

He pointed out that experimental physiology failed us even at the outset, for he found that in experimenting on dogs, albumen appeared in the urine even before the dog was properly tied and chloroformed; in addition to which he quoted Roy in support of the fact that there is the greatest difficulty in raising the blood-pressure in the renal artery. Along with Dr. Gairdner, he believed in the unity of type of Bright's disease, and that the glomerulo-nephritis is not confined to scarlatinal cases, and that it is simply an outcome of the intensity of the disease. He then explained how by hot packs and purgatives the blood-pressure could be reduced and the albuminuria removed, if the renal symptoms are treated at once, so that in the London Fever Hospital only 1½ or 2 patients per annum (in 1000 cases) left with any trace of albuminuria.

He held that the blood-flow in the glomerular capillaries was more rapid than in any others of the body, and he contended that a simple retardation of this flow, unaccompanied by any increase or decrease in the blood-pressure, might give rise to the albuminuria. Speaking generally, however, the following were the most prominent of the causes of this condition:—

1. Increased glomerular pressure and slowing of the blood-flow.
2. Structural alterations.
3. Chemical changes in the blood, especially alteration in the albumens; these altered albumens often passing out from the glomerular vessels very readily.

The albumen found in the blood appeared in many forms, and these forms were constantly undergoing various changes as they were acted upon by the salts of the urine, urea, or micro-organisms. This being the case, heat and nitric-acid were not available for all forms—such as peptones, for instance. Albumen is also found in minute quantities in a large number of patients who are recovering from, or are about to have, nephritis; it is hence a most valuable clinical symptom. It should always be remembered that the various forms make their appearance under different conditions, and that some, paraglobulin, for instance, dialyse more readily and with less delay than others.

Albuminuria is usually a sign that there is undue stress upon the renal circulation; but abnormal albumens, such as peptone, may make its appearance from mal-assimilation. These may be constantly present in the blood, but only make their appearance in the urine when there is any circulatory delay. Where the condition depends upon organic disease, the prognosis is usually grave, though there are cases in which the kidneys fail (in which the kidneys are "tender"), but where the cardio-vascular changes do not supervene. Such cases may recover completely. Then, again, in those cases of Bright's disease with high arterial tension, and but slight albuminuria, the prognosis is not necessarily grave. It should be a cardinal rule, however, to watch all cases with high arterial tension, and the smallest ailment should be at once carefully treated.

The following conditions he held were all conducive to albuminuria: anæmia, dilatation of vessels, nervous depression, anything which enfeebles the circulation, causing slowing. It was also found more frequently in the forenoon, after exertion, constipation, nitrogeneous food, &c.

Dr. Mahomed showed a number of pulse-tracings illustrating some of the points adverted to in his address.

Dr. **FINLAYSON**, Glasgow, included all those cases as albuminuric, in which there are good grounds to suppose that the secreted urine contains albumen, &c.; agreed generally with the previous speakers as to the causes, mentioning also obstruction to the outflow of the urine; but wished specially to point out certain toxic agents which appeared to him to play a most important part in bringing about this condition.

He took three as his typical poisons—cantharides, as an acute poison; lead, a chronic poison; and alcohol, which held an intermediate position.

He mentioned a case in which a blister was applied to the chest, after which albumen and tube-casts appeared in the urine, but no blood.

Acute specific fevers were often the causes of a similar condition, and he quoted a case of malignant pustule in which two-thirds albumen was found in the urine. So too in pneumonia, pleuro-pneumonia, acute tuberculosis, rheumatic fever, and rheumatic pericarditis, all of which presented strong resemblances to the specific fevers. In diphtheria too there might be but slight constitutional disturbance, and still considerable albuminuria. The relations of the skin to the mucous-membrane of the kidney were also touched upon, and then the albuminuria of pregnancy was described as not due to pressure simply, but as having a close relation to the vitality of the fœtus. In the chronic or lead group might be placed gout (though Bright's disease due to these causes was comparatively rare in Glasgow), rheumatism, syphilis, strumous and phthisical conditions (apart from the amyloid condition), jaundice, and diabetes.

Alcohol might give rise to one of three forms, the acute when resulting from a single special dose of the poison, sub-acute, as in delirium tremens and convulsions, and a more gradual or chronic poisoning.

Dr. Finlayson then went on to say that the spirits drunk in Glasgow affected the kidney rather than the liver (as in London), because the population was engaged chiefly in outdoor work, and the cold and wet to which they were exposed determined the poison to the kidney.

Even in the amyloid form there were three toxic agents at work, as even the prolonged suppuration, which was one of the three causes of the amyloid condition, was accompanied by marked deterioration of the blood, due perhaps to blood-poisoning. The other two great causes, syphilis and the strumous conditions, had already been mentioned.

The discussion will be resumed on Tuesday, 26th February, at 8 P.M., when Dr. Coats, Professor Greenfield, Professor Leishman, and others, are expected to take part.

A full report of the debate is to be published in the *Glasgow Medical Journal*, and in the Transactions of the Society.

G. SIMS WOODHEAD.

**ERRATUM.**—On page 366, Oscar Israel (Actinomyces), par. 3, first line, instead of "through," read "after removing."

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## *ORIGINAL ARTICLES.*

### ADDRESS BY SIR ANDREW CLARK ON CATHETER FEVER.

DELIVERED AT A SPECIAL MEETING OF THE EDINBURGH MEDICO-CHIRURGICAL SOCIETY, HELD ON WEDNESDAY, 27TH FEBRUARY, 1884.

MR. PRESIDENT AND GENTLEMEN,—In rising to address you upon this occasion, there come between me and the immediate object of our meeting the recollections of my academic youth. They force themselves upon my mind, and they stir up therein emotions which struggle for utterance, and which cannot, and perhaps ought not, wholly to be repressed. For the better part of a third of a century I have been a practitioner in London, and when now, standing here, I look back over those long years of difficult, anxious, responsible, and sometimes even perilous toil, I see with a clearer, fuller, and a juster vision than ever before the magnitude of my indebtedness to the great medical school of the ancient city in which to-night we are here assembled. Those who know me, and work with me in the daily work of my life, know, alas! much better than I can know, the imperfections, the failures, the errors, which have marked it, and in all such respects I can say with unaffected truth that no one can think of me more humbly than I can think of myself. On the other hand, no one can know as I know, in struggling to make that work better than it is, the spirit by which I have been animated and sustained, the examples which I have striven to follow, and the principles which have regulated all my work in the exercise of the common art which we practise. Here, in those early years, I found the spirit, the example, the precept. Here, when I was a student, the very atmosphere was penetrated by an earnest, a serious, and a high purpose; and you could no more dwell in the midst of it, and remain uninfluenced by it, than you could pass through a garden, and not carry away with you some of the scent of the flowers. Here, in the persons of Goodsir, Thomson, Syme, and Allison, I had the examples of simple, self-denying, useful, noble lives, engaged in getting and in giving knowledge, diminishing the sum of human sufferings, and adding to the sum of human happiness, and finding their own exceeding great reward therein. Here I learned that chronic disease at least was the mere penalty paid for the violation of natural laws, that pathological were but mere physiological processes in new conditions, that local maladies were to be interpreted in the light of constitutional states, that in illness the patient rather than the disease was to be the subject of treatment, and that when life was imperilled you were to discover and, if possible, to obviate the tendency to death. Such and many other of the fundamental principles of our art I learned here, and here only. But, sir, education has other claims than those which are merely intellectual and technical. It has claims on conduct and character which are foundations of the abiding strength of life. Here too, then, I learned the true force of will, the priceless worth of self-control, the strength begotten of self-dependence, and the inexpressible satisfaction of thorough, honest work. Here, above all things, —may I be forgiven for alluding to such things,—here I learned from my revered master, Allison, the great physician, the good friend, that although there may be justly differences between man and man about most of the great questions of life, there is one of them about which there can be no question, that the life of this life is righteousness—the subdual, and the setting aside as well as the subdual, of one's self for what is true and pure, and just and good, and merciful. Many precious things did this great master teach me; but this, alas! he could not communicate. He could only set it forth and show it in his life and work. For from him also I learned that righteousness is incommunicable; the secret of its sweetness and spirit, of its power, its peace, its right, the secret of its beneficence and blessedness, dwells entirely and dwells exclusively with them who truly follow after it. Sir, I rejoice that this occasion has arisen, when I may make to you and to this assembly, the successors and representatives of these illustrious men of whom I have spoken, this heartfelt but most inadequate expression of the debt which I owe to them, too great either to be repaid or to be forgotten. I must be for ever content to remain their grateful debtor, and for ever find in the remembrance of my indebtedness an abiding reason for striving to make myself worthy of it.

And now, sir, to the immediate object of our meeting, the subject which for the moment has been called Catheter Fever. It may be asked, and, indeed, it has been already asked, what right a physician has to deal with a subject which sounds so much more of surgery than of medicine. I answer that the right lies in the duty which the physician in such cases is often called upon to discharge. A patient has been the subject of a surgical operation. The surgical operation apparently has ceased to trouble the patient, but constitutional symptoms of a grave kind have arisen, the patient falls into peril of death, and then, sometimes the surgeon, more often the friends, think of wanting further counsel; and the counsel which naturally, and I trust I may be excused for saying excusably, they will seek is the counsel of the physician. They think, and probably they think rightly, that there are two sides to such a case, and that the one side, which may be covered by the surgeon, leaves another side which may be covered by the physician, and that between the examination of the two a complete examination of the patient may be found. I have been on many occasions called in to cases of this kind; and the conclusion has forced itself upon my mind that the subject of which I am about to speak has not as yet, or, at least, until lately, any adequate, I do not say any place, but any adequate place, in surgical literature, or in surgical teaching. It has seemed to me that until lately our knowledge was neither sufficiently clear nor sufficiently correct, and seeing that such knowledge as we have upon this subject was not, as I thought, widely enough diffused, and that its diffusion was of supreme importance to all of us, I have asked for information, as I am about to ask again to-night. It may be that my mode of asking for information upon this topic has been unfortunate. But, at all events, I will venture to say for myself that it has been done with singleness of purpose. I find myself, however, on this occasion, pretty much as, over forty years ago, I found myself upon a like occasion. It was my duty forty years ago to call occasionally upon a lady. She was single, she was peculiar, anxious to have all the enjoyments of life, and to have also the credit of hospitality. She was very careful, and at the end of my visit to her it was her habit to say to me, "Now, Mr. Andrew, would you rather have a glass of wine, or would you rather no'?" and I was well instructed that I was to "rather no'." But upon one occasion I was wicked enough to accept the offer, or rather, I ought to say, I attempted to get the glass of wine. But such a shower of reproaches and objurgations fell upon me that I have scarcely recovered to this day; and although I attempted to take the glass of wine, I never got it. Now, in reference to this subject of Catheter Fever, a like event has happened. One of the most recent observers on this subject, and, I think, one of the ablest, says, with a slight reproach, that physicians take no interest in it. I have always taken a deep interest in the subject, but I find that the very day that I attempt to manifest it by asking for further information, I get in exactly the same position as I got into long ago when I ventured to attempt to take a glass of wine. The surgeons resent the interference, and I am still suffering from their resentment.

Now, I think that it is almost a truism to say that the introduction of a catheter into the urethra, or, indeed, any like operation, is at times followed by constitutional disturbance, which is on one occasion slight, and on another occasion severe; which sometimes ends in recovery, and sometimes ends in death. That is a proposition, I think, which cannot be disputed—that the entrance of a catheter either into the urethra, or through the urethra into the bladder, is sometimes followed by constitutional symptoms which are occasionally slight, occasionally severe, sometimes end in recovery, but sometimes end in death. Now, it is alleged—and that is the point of importance—that in all such cases ending fatally, renal disease existed before the use of the catheter, and that death is caused by uræmia in consequence of the extension of the renal disease. In fact, that is the crucial statement of the whole discussion which is taking place on this question. Now, I demur to this conclusion, and I traverse its accuracy. I contend that, in persons apparently healthy, catheterism is sometimes followed by fever, not distinctly uræmic nor distinctly pyæmic—that this fever often ends in death, and that in such cases the autopsy reveals no definite visible structural lesion adequate to account for death. I have used two words here which I must pause for a moment to explain. I have used the terms "apparently healthy," and also "persons, if not healthy, with a low density of urine." I have said "apparently healthy," and this has been taken exception to. But I am bound to resist the exception. I contend that if a man is brought before me, whose functions, as far as I can ascertain them by all the modern means of research, are sound, who eats and digests well, whose urine is of normal constitution in every respect, who has no respiratory, no circulatory, no objective or subjective evidence of nervous disease—I am bound to say that such a man is healthy; and I think that every physician of a life insurance office, assuming the family history to be also good, would accept such a life. And the whole question has arisen to my using the term "apparently," because I never, with the caution which we in the north country have learned to use, would say that any man is healthy; but I use the term "apparently healthy," and say that, so far as modern means and appliances for investigation can guide me, there is no evidence of disease. Then I have said, "or with a low density of urine." Thirty years ago, I stated in the first volume of the London Hospital Reports, that it was not necessary to find albumen in the urine or casts or any excessive quantity, to be at least necessary indication of the presence of disease; that it was quite sufficient if a man habitually passed a low density of urine to infer from that fact alone that his kindeys were not sound. I am sorry that I made that statement without a qualification, because; as stated, I should be glad to withdraw it and to put in its place now—"that a man who, in other respects healthy, yet passes habitually rather less than the ordinary quantity of urine of a density we shall say below 1015, had inadequate kidneys." But I should not say diseased kidneys, and I should draw a distinction between the two. For I say, that a man may have a skin which does not produce a proper sweat; yet, if you were to examine that skin by every process in your power, you would be unable to detect any evidence of disease. So, in like manner, I say of the kidney, that it may be inadequate, may be unable to produce a healthy urine; and yet, when examined by the microscope or anything that the highest advance of modern medical science has at present at its disposal, you may be utterly unable to detect any structural lesion. For my own part, I do not mean that every man with a low density of urine has a visible structural change in his kidney, but I do mean that he has an inadequate kidney.

Now, then, after these few preliminary observations, we are brought face to face again with this question of what is called catheter fever; and its exact place among the other facts of catheterism will be seen by a reference to the table I have here. I have two tables, one of which is capable of being shown on the wall; and another, which, being the busy table of a working man, is scarcely fitted for representation upon the walls, but may be useful in the course of this discussion, for it contains not only the facts set forth in the other table, but precisely the reference to the various authors who have written upon the subject, and the pages in this book in which the exact quotations will be found.

Now, a glance at this table will show you better than any lengthened description which I can give you, the exact position of what has been named for the moment catheter fever. First of all, we suppose that the operation of catheterism has been performed, and it will have been performed in a person whose kidneys are assumed to be healthy or diseased. First, of those which are assumed to be healthy. When the catheter is introduced, there are various effects which follow, and the first of which we may class under the neurotic. Sudden nervous disorder, such as shock, it may be, of which we have a simple illustration—rigors, faintness, epileptiform seizures. Second, we have slower nervous disorders. When the catheter is introduced, sometimes there is no visible change for twenty to twenty-four hours, after which disorders, apparently nervous, set in. These consist, apparently, of some disorders of nutrition, and these are either general or reflex,—that is to say, it is assumed that the first act is a disturbance of the nervous system; the second act a disturbance of nutrition of the body; and the third act, not represented here, is a disturbance of the nutrition of special organs associated by communal functions with the bladder or urethra—namely, the kidneys. Lastly, the non-renal, constituting a form of septicæmia. Now, these first forms constitute by themselves what may be clearly embraced by the term catheter fever—namely, the fever which occurs after the introduction of a catheter, or of any like operation upon the urethra, a fever which follows an irregular remittent course, which sometimes ends in recovery, but which sometimes—more often, indeed—ends in death, and in which, after death, no definite visible structural lesion adequate to account for death is found. I need not go over the table, which will explain itself. The second assumption is, that the same thing may occur while the kidneys are

| *Before Interference.* | | | *Pathogenic Hypothesis of Nature of Troubles following.* | | | *Type of the Illness.* | | | *Essential Clinical Features.* |
|---|---|---|---|---|---|---|---|---|---|
| Kidneys. | Healthy. | Neurosis. | Sudden Nervous Disorder. | | | Shock, | | | Simple (Apyretic) Rigors.<br>Faintness, Epileptiform Seizures.<br>Acute, Single, or Recurrent.<br>Febrile Paroxysms (Pyretic Rigors). |
| | | | Slower do. | General Dystrophy. | | Strong Irritative Fever. | | Catheter Fever. | Low Irregular Remittent Fever.<br>(Sub Intermittent Fever).<br>Rheumatoid Fever. |
| | | | | Local or Sympathetic or Reflex Dystrophy. | | Urinary Atrophy. | | | Low Remittent.<br>Arthropathic (Pyartroses). |
| | | Toxhæmia. | Non-renal, direct, by addition (Ischæmia). | | | Septicæmia. | | | Irregular Remittent Fever.<br>High Pyrexia, Nausea, Delirium. |
| | | | Renal, indirect, by accumulation (Uræmia). | (1.) Extension of Inflammation by continuity, or by chemical changes in the urine. | | Pyæmia | Catarrhal. | | Irregular Remittent Fever.<br>Metastatic Abscesses. |
| | | | | | | | Interstitial | | Pyrexia, Ischuria, Pyuria, Hæmaturia.<br>Albuminuria, Emesis, Coma. |
| | | | | (2.) Change of pressure in the urinary reservoirs, leading to changes in renal and general circulation. | | Organic Lesion | Nephritis. | | |
| | | | | | | Functional Renal Lesion. | | | Ischuria, Hæmaturia, Coma.<br>Or Suppression, Coma. |
| | | | | (3.) Nervous Reflex action. | Vaso-Motor Inhibition or Paralysis. | | | | |
| | | | | | Secretory Inhibition or Paralysis. | | | | |
| | Diseased. | Neurosis.<br>Toxhemia. | As above | | | | | | The same as above, but more severe. |

diseased. But the question immediately before us is the occurrence of a fever in which the kidneys are assumed to be healthy, rightly or wrongly, or no renal disease. On either assumption, as I think I will show you, there is something to be accounted for, but the question will be much better narrowed to the first given in the red-coloured ink.

Now, then, the first question which occurs in considering this matter is—Does this fever, as I have defined it, really exist; is it true, or—not to use a word which implies a moral question—is it accurate to say that, after the use of the catheter, there sometimes arises a fever which occasionally ends in death, and in which, when examined after death, no definite visible structural adequate cause of death is to be found? I conclude, for my own part, that such a fever does exist, and the grounds for this conclusion are these:—

First of all, the admissions, setting aside diversities of interpretation, of almost all—not all, but almost all—authors, from Moffait in 1800 to Guyon in 1883. And it has been particularly, and I would say admirably, set forth by a person, who has been overlooked in this discussion—viz., Mr. Banks of Edinburgh, whose communication appeared, curiously enough, in the *Edinburgh Medical and Surgical Journal* of 1871. He is, as I understand the matter, the only English author who has clearly recognised the existence of this fever, and he has alleged that it is quite a distinct fever from the fever of what is called pyæmia. Second, I believe in its existence from the observation—post-mortem—of three cases of my own, and of many other cases in which, unfortunately, no post-mortem could be got. Third, I believe in it on account of the complete recovery of some serious cases following catheterism, which would be scarcely compatible with the idea of their having had a severe interstitial nephritis. Next, from the fact that in many post-mortem records of old-standing hospital cases dying of prostatic vesical disease—for instance, in 26 out of 66 recorded by Marcus Beck in the University College Hospital Records—no evidence of renal disease was recorded. Furthermore, from the fact that in the cases where renal changes exist, they are not, as proved by the examination of the urine and by a study of the general symptoms, adequate of themselves, or with the help of any other visible structural sign, to account for death. I say then, to use the mildest term that I can on such an occasion, it is at least extremely probable that this catheter fever exists; and if it does exist, how then are we to account for the allegations of certain specialists of great, and, I dare say, just distinction, that in fatal cases of this fever renal disease has always existed before the use of the catheter, and is always, in fatal cases following its use, the cause of death? To not a few persons, sir, such statements from such quarters are conclusive as to their truth. But truth, which has no creeds, certainly bends to no authorities, and in such contentions as this in which we are engaged the appeal must be made, and always made, to facts, and not to mere opinions—to reasonable probabilities, and not to any particular persons. Besides, I hope it is not unreasonable to say, that one may be too near a subject to see it quite accurately. Sometimes it requires one to go to a little distance to see a thing accurately, and its proportions to the other things with which it forms a portion. Nay, that also is not always sufficient. Sometimes it needs an intelligent and interested bystander to set one right about the conceptions which one forms of the things in the midst of which one is engaged. I suppose that in a battle those who are in the press of the fight scarcely know the disposition of the forces, or the manner in which the tide of victory may be turning. It is the general, who has the threads of things in his hands, who alone can determine this.

Now, that in cases of catheter fever the kidneys are not always diseased beforehand, I conclude from following facts:—First, from reported cases, to which at least a certain amount of weight must be given. Second, from examinations of urine made by competent persons before the entrance on catheter life. I may here pause a moment to relate a case which, by the kindness of Mr. Howard Barret of London, I am enabled to do. The substance of it is this: A gentleman came to Mr. Barret, and consulted him for a little incontinence of urine. He examined the urine, and, being a man of a scientific turn of mind, and one of the most careful men I know, he examined it with a care and precision which are to me absolutely trustworthy; and he declared that this specimen of urine was healthy. Seeing this, he recommended some simple means to allay the irritation of the bladder, and dissuaded him from surgical interference. But Mr. Barret's advice was not followed. The gentleman consulted a surgeon, and the surgeon followed the usual course of treatment in such cases by placing him upon catheter life. In a short time he suffered from catheter fever and died, and the report of the cause of his death was advanced disease of the kidneys. Third, from examination of the urine made by myself. I am accustomed to examine the urine, and it has occurred to me, as it has to every busy physician, to have been consulted for maladies of this sort. I have had many such persons consulting me, and I have on all occasions, either myself or by the help of my assistant,—who is a competent person, and, having been educated in Edinburgh, is therefore particulary competent,—examined the urine. In many such cases we have found what I call conclusive evidence of healthy kidney—that is to say, a normal amount of urine, a normal constitution, and no evidence of a constitutional state or urinary disease which might influence the secretion of urine. Fourth, from the complete restoration to health, which in some cases follows recovery from catheter fever, a restoration which can scarcely be expected in true and considerable interstitial nephritis,—a restoration, however, which I admit might be possible in the affection which is now called interstitial nephritis, and which is a very different thing indeed from the so-called interstitial nephritis of ten years ago. It seems to me that the interstitial nephritis of these days consists in nothing else than in changes undergone by escaped leucocytes lying between the tubules and around the vessels. However, that is beside our question. Fifth, from the fact that in some cases of fatal catheter fever examined before catheterism, no evidence of renal disease, though especially sought for, no more than any constitutional state of the patient, have been found in the state of his urine.

Now, as respects the second contention, that death is due always to renal disease, and that even if the catheter fever were recovered from, the patient would die soon after in the usual way from uræmia, my experience compels me to dissent from both points. Probably most of the meeting will know that, in a certain work on renal diseases of the highest merit, there is a paragraph which says that in cases where death follows the use of the catheter, it is certain that renal disease has existed before the use of the catheter; and if the patient had escaped the fever which ends in death, the said renal disease would have terminated his life before very long. My experience compels me to dissent from both points of this statement. It is true, no doubt, and no one has doubted, that in long-standing cases with dilated ureters and contracted kidneys, death does sometimes arise from uræmia, That is true; but to state the same thing of recent cases is not true. For in recent cases, neither the general symptoms nor the characters of the urine in the closing days of life resemble in any manner those of true uræmic poisoning. Hear, for example, the words of Marcus Beck, who is an advocate of what is called the nephritic view of all these fevers, but, with the candour which becomes an honest and great inquirer, makes this admission. Mr. Beck, speaking of the closing days of urinary fever, or, we may say for the moment, catheter fever, says: "At the same time,"—that is, at the same time that he asserts the existence of renal disease,—"the secretion of the urine continues in fair quantity, and the patient cannot, therefore, be said properly to die of uræmia." And, further on, he adds: "As before stated, in many cases the real cause of death is not so much due to the kidney, for the excretion of urine remains abundant to the last, but the absorption from the abscesses or from the putrid urine in the pelvis. On the other hand," he continues, "the symptoms closely resemble and, as a matter of fact, are often indistinguishable from, those of septicæmia." Furthermore, it is not, I think, accurate to say that, if these patients escaped the fever, they would necessarily, in a short time, die. I venture to say of renal disease, as I constantly say of heart disease, that the prognosis has to be re-written. The most striking illustration of this assertion that I can give you, sir, is one that occurred in the person of the wife of the distinguished Arctic voyager, Sir John Franklin. Somewhere about the year 1840, Robert Christison, the great physician of this city, discovered that she had renal disease, and there was no doubt of the fact—if any doubt could attach to a diagnosis of Christison's—for it was confirmed by physicians in London and Dublin. And yet she continued to live, to work, and to work actively, and to enjoy life for over thirty years after that time. As a matter of fact, the prognosis of renal disease, as of many other organic diseases, is recorded in books by men who are beginning to get their experience, and not by men who have got their experience. The prognosis of renal disease and of heart disease is usually formed from the study of those diseases in the wards of an hospital. But any one who knows well the sick poor knows that it is their last extremity to go the hospital, and that when they go into the hospital with cardiac or renal disease, and when they say they have been for a certain time ill, that is no true record of the time during which symptoms of their disease existed and would have been discovered, if the opportunity had been offered. They go into the hospital when they cannot subsist out of the hospital any longer. And so it has come to pass that mitral disease has been stated to last from two to three years, when experienced physicians know that, without alteration to health, it may last for forty. And so with renal disease. I have myself heard a distinguished teacher say that two-and-a-half years was the duration of life for a person with chronic disease of the kidney. And yet I have known a man enjoy some of the experiences of age, and, whereas I appointed him to die in 1868, he is now living in the enjoyment of fair health.

Then, if it be true that there is such a fever as Catheter Fever, and if it be true that there is in certain of these cases no visible adequate structural cause to be found for death upon the autopsy; and if, furthermore, it be true that in certain cases where the kidneys are affected, the affection is not adequate to account for death, the questions arises,—What, then, is the differentia in these cases; what is that state which, without renal disease in some cases, and which superadded to it in others, occasionally after Catherism brings about death? For the moment, I shall, as I have stated already, call it Catheter Fever. It is a clinical obviously, and, as obviously, it is not a pathological entity. What is its nature? I do not know. I can only state facts, and I can only interpret them by reasonable conjectures. It would require, sir, a greater amount of youth and a greater amount of inexperience than I could justly lay claim to, to speak with certainty upon this question. I have no doubt that some who can lay claim to these qualities would do so. I dare not do so. But, so far as

I may judge, I should say that there appears to be three steps or stages in the evolution of this so-called catheter fever, occasionally perhaps four. First of all, it seems to me that there is some direct or reflex irritation of the nervous system. Secondly, that through that irritation, or it may possibly be independent of it, there occurs a disturbance and disorder of all the metabolic processes throughout the body, and the various organs and tissues, but, of course, more particularly in the kidney, on account of its communal relations with the urethra and bladder, which are themselves in this case the object of irritation. Third, a septic infection, occurring or begotten, either auto-genetically or deutero-genetically—begotten outside or inside the body. Fourth, and occasionally—for it is only occasionally that it occurs—I think the sudden diminution of pressure, by the removal of a large quantity of urine from the bladder, brings about such a change in the constitution of the vascular supply, and the nervous state of both bladder, and ureters, and kidneys, as to bring about all these changes independently of either of the other states.

Now, sir, it seems to me that the difficulties of this subject—and they are greater than may even appear from this statement of them—have been unnecessarily heightened by the disproportionate attention which has been given to anatomical changes. Such disproportionate attention is not peculiar to this subject. It is, perhaps, one of the marks of the medical aspect of the age in which we live. And this has been, as I think, brought about and maintained by the objective character of the inquiry, which is always pleasanter to men than abstract subjects of inquiry, by the increasing facilities which have been given for such investigations, by the ease with which they may be pursued, by the comparatively moderate ability and knowledge necessary to success, and by the abiding reputation of success, when success has been achieved. It is not a very uncommon thing to see a person who, in the early part of his life, has written a successful paper on an anatomical, or, properly speaking, pathological, subject, and has rested upon his laurels, and thought himself entitled to sneer ever after at clinical medicine as an empirical and unworthy thing. It would almost seem sometimes that the great end of rational medicine was the mere description and explanation of structural changes. But surely, sir, this is a fatally inadequate view of scientific medicine. For structural changes, at least as far as I can read them, are all episodes, yes, and often but uninteresting and unimportant episodes, in the evolution of disease. Disease, as I see it at least, in its beginning, in its continuance, in its issues, in its endings, is dynamic. Its physical, chemical, and, for a moment —if I may be pardoned—vital changes, and the interaction of such changes upon each other beyond the scrutiny of mere physical things, precede, originate, maintain, underlie, and give form, meaning, and importance to all pathological changes. The question is not what the structure teaches, but what the conditions begetting that structure mean? And here—if I mistake not very greatly—in this domain of dynamics, lies the great future of physiological, pathological, and clinical discovery. But it is certain that such processes must be slow. They demand the highest faculties of the mind for the purposes of such inquiry. They demand qualities rarely found in conjunction—accurate observation, a deep and wide insight, ingenuity of interrogation, a ripe sobriety of judgment, infinite patience, and complete unselfishness. The toil of such inquiry is exceeding great, the fruit returned in such a field but small, and the return, beyond the use to others and the pleasure of the toil, utterly insignificant.

But, to return from this seductive digression, let us assume that catheterism is sometimes a perilous operation, and may be followed by a fever, sometimes ending in death; and, furthermore, assuming that one is about to deal with a middle-aged man suffering from an enlarged prostate and irritable bladder, the following problems at once present themselves for solution; and it is, in the second place, these problems that I respectfully submit to your consideration. First,—What circumstances should determine the habitual use of the catheter, and what circumstances should determine one to avoid it? I must say that I have received communications of cases, in which it appears that it is not always necessary in certain conditions, in which it is usually thought necessary, to put the patient on catheter life. Mr. John Merryman, one of the most distinguished physicians in London, communicated to me the substance of the following case. He told me he had a patient suffering from irritability of the bladder, and a little incontinence; and he attempted to introduce a catheter, and finding that it was followed by considerable local irritation in the shape of catarrh, and generally in the shape of a few rigors, he abstained. But the irritability continued, and the friends called in a surgeon to consult with Mr. Merryman. The surgeon immediately proceeded, with some little force, to pass a catheter. Twenty-four hours afterwards the patient had a severe rigor, and for fifteen or sixteen days he lay in a serious fever, as Mr. Merryman thought, in constant peril of death. At the end of that time he began to recover, and curiously enough, not only recovered from the fever, but from his local trouble, and from that time, as far as I know, until this day, both have entirely ceased. So that it happens sometimes—I am afraid it does not happen very often—that in cases of irritable bladder, and even fever, the whole of the symptoms may subside without the intervention of catheter life. Second,—If it is resolved to place the patient upon catheter life, what local and what general precautions can be taken, with any reasonable hope of averting this possible fever? Third,—And if, in spite of all these precautions, this so-called catheter fever should arise, what are the means most likely to guide the case to a successful issue?

With these questions I shall leave this subject in your hands. I will no longer trespass upon the time and patience of the Society; but I will, as I have said, leave it in your hands, assured that it will receive a just and an adequate discussion at your hands, and hoping that the result of the discussion may tend to the relief of suffering, to the advancement, or improvement at least, of our knowledge, and the greater safety of human life.

[In the discussion which followed the delivery of Sir Andrew Clark's address, and which will be published next week, Dr. P. Heron Watson, Professor Grainger Stewart, Professor Chiene, Professor Annandale, Dr. Wylie, Dr. Joseph Bell, Dr. Byrom Bramwell, and Dr. Duncan took part.]

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# CASE OF ADDISON'S DISEASE AT AN UNUSUALLY EARLY AGE, WITH DESCRIPTION OF MICROSCOPIC SECTIONS OF THE SUPRA-RENAL CAPSULES.

By Henry M. Church, M.D., B.Sc.

As Addison's disease is almost entirely confined to the laborious period of life, and exceedingly rare in children, the record of this case is called for. Merkel (in his article in "Ziemssen's Encyclopædia") writes: "The disease occurs most frequently in the prime of life, from the age of 15 to 45, no instance having as yet been recorded as occurring before 10 or after 60."

In the following case the disease commenced about the age of 9½ years.

M. W., a little girl, aged 10, came under my care in August last, suffering from Addison's disease. Five years ago she suffered from an affection of the lungs, from which she seemed to have recovered, though she never became so strong as formerly. Family history was good, with the exception of a maternal uncle, who died of phthisis pulmonalis. There is no history of Addison's disease in any member of the family, though an interesting point regarding her mother is, that though healthy, she has for many years had well-marked bronzing (cloasma) of the forehead and temples. The other children in the family are strong and healthy. This little girl's illness began about twelve months before I saw her, with no other symptom than slight discoloration of the face, which the friends ascribed to jaundice. She continued at school all the year till a month before her death, and was able to walk a mile to and from. At school, however, she was listless and made little progress. During this time she complained of constant headache, and pain in the side, if her companions pushed her about. Her mother noticed that her appetite became poor, and that her skin gradually darkened, not only on the face but over the body.

When called to see her, I found that the usual symptoms of advanced Addison's disease had come on somewhat suddenly, and that they were well marked. She was unable to rise on account of weakness, breathlessness, and giddiness, and suffered from distressing sickness and retching. Her skin was of a dark bronze colour, her eyes glistening, the whites of the scleratics being particularly distinct. The pulse was rapid and weak, the skin moist and clammy, the extremities cold. Bowels and kidneys acted normally. She continued in this state for a week, and died in a convulsion.

For some days before her death an intensely disagreeable odour emanated from her body, which made it difficult to remain by her bedside.

On post-mortem examination, made twenty-four hours after death, this fœtid odour had quite disappeared. The skin was of a dusky colour, darker on the face, in the axillæ, on the mammæ and umbilicus. The mucous-membranes were all bronzed.

The left lung, at its apex, had cheesy nodules, and the remains of a small cavity. The lung was closely adherent to the costal pleura.

The right lung was healthy, with the exception of a calcareous nodule the size of a pin-head at its apex.

The heart was remarkably small, with fatty degeneration of its muscular tissue. In the right ventricle there was a colourless clot, and in the left a considerable quantity of blood.

The peritoneum presented a dingy appearance. There was a localised peritonitis about the bowel, pulled out from the neighbourhood of the left kidney.

The kidneys themselves seem normal, but both supra-renal capsules enlarged; the right, about one-eighth the size of the kidney, is not adherent, and is separated from it by a layer of fat. On making a section of it, a calcareous body dropped out, possibly indicating, as Dr. Greenhow suggests, a more advanced degree of supra-renal disease.

The left capsule is about one-third the size of the kidney. It is intimately adherent to the kidney, but the substance of the supra-renal tumour does not pass into the kidney tissue. On section, this capsule presents a uniform homogeneous, opaque appearance, except at its upper angle, where there is a fawn-coloured spot about the size of a split-pea, which, upon microscopic examination, seems to be the residue of the normal structure of the supra-renal capsule. The colouring has been due to a hæmorrhage.

Dr. R. W. Philip, assistant to Professor Grainger Stewart, has kindly prepared for me four miscroscopic sections, which show the pathology of the supra-renal capsules in this case.

1. A section of the fawn-coloured area referred to, seen under a low-power of fifty diameters, presents a reticulated structure with granular matter in its alveoli. The reticulated structure is pressed on all sides, so that the alveoli gradually became less and less distinct towards the periphery until the spaces of the net-work are lost, and the section presents the appearance of a fibrous tissue. On one side of the mesh-work the encroaching mass has less of a fibrous character, but is more distinctly cellular.

2. Under a high-power of 300 diameters, the section presents a reticulated appearance, in the inter-spaces of which lie abundant cells of small size, though not of equal size. The cells are irregularly round, while some are distinctly hexagonal. Probably these cells are the altered blood-corpuscles of a hæmorrhage which had taken place into the substance of the capsule.

3. In a section through the junction of the fawn-coloured normal area and the lighter part of the surrounding structure, it is seen that the walls of fibrous tissue forming the alveoli became more compacted, and the cells in the aveoli less distinct. The section presents the usual appearance of a close fibrous tissue, with connective tissue corpuscles more or less abundantly distributed in its meshes. At some points the cell elements are a conspicuous feature, the fibres being comparatively few.

4. As seen under a high-power, a section through the general mass of the capsule, apart from the fawn-coloured area, shows in general the fibrous stroma with round cells and well-marked nuclei; and scattered in different parts of the field, large irregular cells with branching processes passing out to the general stroma. These latter are true giant-cells, which with their several well-marked nuclei form the principal feature in the field of the microscope.

# *MEETING OF SOCIETY.*

## GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

### DISCUSSION ON ALBUMINURIA: ITS PATHOLOGY AND CLINICAL SIGNIFICANCE.

*On 26th February.*

THE adjourned discussion on albuminuria was re-opened by Prof. LEISHMAN (Glasgow), who considered that in his department there were many points which, apart from pathological questions, have an interesting bearing upon the subject under discussion.

Physiological albuminuria, though involving something of a verbal paradox, is nowhere more nearly approached than during pregnancy. During pregnancy the composition of the blood is remarkably altered, even in perfectly normal natural pregnancy. There is an increase in the quantity of fibrine in the watery elements, and in the amount of albumen, whilst there is a diminution in the number of corpuscles. There is here a physiological change, which, in all other cases we should speak of as pathological; and he might quote these facts in favour of Professor Hamilton's bold and original theory, propounded at the first meeting, in connection with the altered specific gravity of the blood. He further considered that the diminished quantity of albumen in the blood might have some bearing on the presence of albumen in the urine.

In connection with the large percentage (20 °/₀) of pregnant women who had distinct albuminuria, he might draw attention to the fact that in pregnant women there was, according to French pathologists (and this might be verified by all) a distinct increase in the size of the left ventricle of the heart, and that with all these cases there must be increased vascular tension.

This puerperal albuminuria cannot be looked upon as nearly such a grave symptom as in ordinary cases, but it undoubtedly has a certain clinical significance in connection with puerperal convulsions which we always dread when the albuminuria is present.

In Braun's theory of decomposition of urea into carbonate of ammonia, which acted as a toxic agent upon the nerve centres, pathology led us to some rule of treatment, such as the exhibition of vegetable acids, citric, acetic, and especially benzoic, but this he considered was not, as a rule, the outcome of pathological discussions.

He quoted Traube and Rosenstein's theory, in which it is assumed that there is no poison in the blood, but that the uræmic phenomena are due to the increased tension of the blood acting upon the brain, causing œdema, the serum thrown out acting as a compressing agent on the blood-vessels, and giving rise to anæmia. He also quoted Angus Macdonald, who had found, however, in cases of puerperal convulsions, that the anæmia undoubtedly was present, but that there was no œdema, and he argued from this that there was a poisonous action on the vaso-motor centres, spasm, anæmia, and so convulsions. Professor Leishman concluded by asking whether we were not to leave the idea that albuminuria and puerperal convulsions were in the relation of cause and effect, and to consider rather that the cause of both may be a toxic agent acting on both the kidneys and the brain. In support of the notion that they do not stand in the relation of cause and effect, he pointed out that either may be present without the other. He hoped that the clinical aspects of the condition, especially with regard to its treatment, would be considered during the debate.

Professor **GREENFIELD** (Edinburgh), defined the condition as one in which serum albumen is exuded into the urine in a quantity recognised by the ordinary tests. To be sure that there is such a thing as physiological albuminuria, we must first be satisfied that there is no pathological condition in the kidneys which might not give rise to this condition, and this must apply not only to change in structure, but also to change in function.

He referred to the extreme frequency with which unsuspected renal disease exists, and pointed out that marked naked-eye or microscopic changes were present in many cases where no disease had been suspected during life. The history of the disease in some cases, the causes, &c., as already mentioned, all pointed in this direction. In all cases the various conditions present should be fully investigated.

He considered that certain points had been overlooked by Professor Hamilton and Dr. Newman, who had passed by the clinical fact that albuminuria was present in chronic venous obstruction, due to heart disease, only when there was some marked exacerbation of the other symptoms. He described the anatomical changes which occurred in this condition, and discussed the differences between the afferent and efferent arterioles, and their relation to the tension and secretion. The unity of type of inflammatory changes, he contended, was not departed from in the kidney in cases of Bright's disease, and in all the acute forms of the disease, whatever might be the cause, the changes were essentially the same, active congestion, transudation of lymph, stasis, diapedesis, especially around the small venules and small arterioles.

Here the accumulation of leucocytes is first around the efferent and afferent vessels of the malpighian body, and the efferent vessel being more readily compressed is narrowed, and there is increased pressure behind it and increased turgescence in the glomerulus, and albuminuria is the result. This single condition is always present in acute nephritis, and it alone is sufficient to cause albuminuria.

It should be remembered, too, that in some acute forms, as in scarlatinal nephritis, there might be little epithelial change except in the straight tubules in the pyramids, and he found it an extremely difficult thing to determine whether the pus cells in albuminuria were derived from the epithelium or from leucocytes derived from the blood. He considered that the albuminuria of pregnancy was in all probability due to slight inflammation due to obscure toxic causes, such as uræmia; and, if repeated, it might pass into a condition with all the chronic changes described as due to other causes, but even after there is apparently a complete cure, we may always find scars. A case was described in which the patient came in almost moribund, who eventually recovered under treatment, but who afterwards died from another disease, and in the kidney were found all those changes which would be classed under the heading of chronic interstitial nephritis.

In all cases interstitial changes are present along with the catarrhal condition, but they are not so patent during the early stages of the disease, hence the confusion which exists.

It is, he said, in those cases in which there are glomerular and interstitial changes, in which there is a great increase of fibrous tissue around the glomerular tuft, and between the tubules and capillaries, that the glomeruli are cut out from the circulation and function, and we get persistent albuminuria, dropsy, and hypertrophied heart.

There may be a cure following even the large pale form, if the change is not sufficient to destroy the secreting tissue, some parts remaining to carry on the work; but there is always a tendency in such cases for the disease to assume the chronic form; in fact, transitional forms may be met with which bridge over the gap between the acute and one of the chronic forms (leaving out of account that atrophic form which appears to be due to primary changes in the vessels). But in all cases the albuminuria appears to depend upon acute inflammatory exacerbations in certain areas or glomeruli.

These facts point to the methods to be followed in treating cases:—(1) eliminate toxic elements by means of other channels, such as bowels and skin; (2.) lower arterial pressure. Both of these may be compassed by the same means—*i.e.*, by acting upon the bowels and skin by purgation, hot baths, &c.

Dr. COATS (Glasgow), wished to take up the subject from a pathological point of view, as he considered that hitherto the discussion had been too much on physical and mechanical lines. He compared the structure of the glomeruli of the kidneys to the lungs, where the capillaries are surface vessels, and are separated from the outer world by a basement membrane and a layer of epithelium. In both, no albumen passes beyond the epithelial layer in a state of health; but in both may it be present in inflammatory conditions. In the kidney, there is a true secretion, not a mere exudation, as the membrane is not a simple but a compound structure, and is quite different from the ordinary animal (dead) membrane used in filtration experiments.

The conditions of circulation in the straight vessels and capillaries have escaped attention far too much hitherto, and the relations of the slower circulation to the secretion of urea has been to a great extent overlooked. In connection with the passage of albumen, he returned to the fact that egg-albumen passes into the glomeruli, and that it can be coagulated *in situ* by heating the kidney after experiment has been completed. He further pointed out that after death the membrane is not sufficient to prevent the passage of serum albumen into the glomerular capsule; and so too in disease, the membrane, as it approached a devitalised condition, allowed the albumen to pass as seen in amyloid disease of the kidney where as much as 2 °/₀ albumen is met with.

In Bright's disease, he also argued that the fact is not sufficiently borne in mind that here there is an acute inflammatory condition with all accompanying changes. Just as in any other organ, as in pneumonia the constituents of the blood leave the capillaries, and as a matter of fact red blood-corpuscles can be demonstrated in the capsule just as they can in acute pneumonic exudation, and for the same reason leucocytes are commonly present in the urine as well as extravasated into the kidney tissues. In fact, he held that desquamated epithelium commonly so called is a very rare condition, and that the casts usually met with are composed of leucocytes.

In a case which came under his own notice of sub-acute Bright's disease, lasting for one year, in which there had been several dropsical attacks during which the urine was loaded with albumen, he had found a great number of leucocytes, which were entered by the clerk of the case as "pus corpuscles." After death there was found no source of pus, but the kidney tissue was infiltrated as in acute interstitial nephritis. Most of the leucocytes came from the glomerular vessels. In the medulla, however, straight vessels were packed with leucocytes, as also the tubules in their neighbourhood. Naturally, one would expect the albuminous fluid to be poured out by the same channels.

He pointed to a similar condition in scarlatinal nephritis, and suggested that leucocytes should be more frequently looked for.

Contrasting this with the chronic form, he pointed out that in the chronic form the urea is not below normal (for twenty-four hours); there is an increase of water, but little albumen; still the kidneys are greatly altered, glomeruli are fibroid and solid, tubules are destroyed, especially the convoluted tubules, and there is atrophy of the secreting elements. In consequence of this, there is more than double work done by the surviving elements (glomeruli), but the water passed out is not re-absorbed as the epithelium is destroyed. There comes a point, at length, however, at which the kidney is no longer able to keep up with its work, and uræmia is the result.

Albumen is not re-absorbed after it passes the glomeruli, but we find that, although the epithelium is so much altered, the quantity of albumen may be only very slightly, if at all, increased. Increased pressure cannot account for albuminuria; but any acute exacerbation of the inflammatory condition may give rise to it, in which case there is a passage of albumen from the vessels to the tubules, both from the glomerular tufts and the straight vessels (arterioles) when altered by disease.

Mr. M'Gregor Robertson (Glasgow), wished to approach the question from a physiological and physico-chemical point of view, and wished to divide the structures concerned in the process into two sets—the glomeruli and the renal epithelium. He considered that in the first set the process was one of pure filtration; and he criticised Dr. Mahomed's statements as to the process concerned, stating that he evidently confounded the two processes. He contended that it was a pure filtration, and that all the elements found in the blood passed into the capsule, just as through any porous animal membrane, the quantity of the elements differing under different pressures, the quality never; and he also pointed out the effects of the presence of salts, which aid in diminishing the amount of albumen passing through.

In connection with the diameter of the tubule, he remarked that where the fluid presumably contained a large proportion of albumen, if the above theory were correct—*i.e.*, in the first part of the convoluted tubule—the lumen was such that the fluid was not long in contact with the epithelial elements. It contained a large quantity of albumen, some of which was readily removed; but, as the distal end of the tubule was reached, there was less albumen in the filtrate, and consequently, to get rid of this, the fluid had to remain longer in contact with the epithelium; hence the smaller size of the lumen in the looped tubules.

To prove the albumen absorbing power of the epithelium of the tubules, he referred to the action of atropin on the salivary gland in paralysing the secreting elements. He then quoted an experiment in which he examined the urine of a cat for some days, and found it perfectly normal. He then injected atropin, and found albumen in the urine, from which he argued that the epithelium was paralysed, and hence could not perform its function of re-absorbing the albumen. In the same way he should explain those cases of albuminuria described by Dr. Mortimer Granville, where there was anæmia and loss of nerve-power.

Mr. Robertson concluded by saying that he should as soon speak of physiological dyspepsia, when due to loss of nerve-power, or to anæmia, as of physiological albuminuria.

Dr. Kirk (Glasgow), contended that the newer tests for albumen are more valuable and more reliable than nitric acid and heat. He gave examples of the conditions under which even these gave more delicate reactions.

If to a normal urine sufficient albuminous urine is added to give a reaction with nitric acid in fifteen minutes, a *weak* solution of picric acid, chromic acid, sodium tungstate, potassium ferrocyanide, &c., will give a reaction in one minute; and with picric acid the maximum effect is obtained within two or three minutes. He also pointed out the influence of the sp. gr. of the test re-agent;

in all cases it must be so weak that it will float on the surface, and where urine was greatly diluted the picric-acid test was not so delicate as nitric acid or heat, until the sp. gr. was raised by the addition of common salt, say when the picric-acid test became a most delicate one. It was well to use both picric and chromic-acid tests, as chromic acid would give no reaction with quinine, &c.

In the case of mucin he found that citric acid, with a sp. gr. of 1005, was the best re-agent; it was more delicate than picric acid, and gave a denser ring. When the two are used together, if the citric acid gives a denser ring than the picric acid, we should come to the conclusion that we have to do with mucin. If, on the other hand, the picric acid gives the denser ring, we have an indication of the presence of albumen. He further stated that mucin gives with heat a turbidity which may be thought to be due to the presence of albumen. And this must always be remembered, as mucin required a large quantity of acetic acid to precipitate it thoroughly. He found that highly-concentrated urine contained a large quantity of mucin, which, owing to the disregard of the above conditions, was often mistaken for albumen.

The discussion is to be concluded on Tuesday, 11th March.

G. SIMS WOODHEAD.

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## *REPORT ON MENTAL DISEASES.*

1. **Lardy.**—ON THE EFFECTS UPON THE BRAIN OF REMOVAL OF THE THYROID GLAND. *Chronique des Annales Médico-Psychologiques*, Janvier, 1884.
2. **Bianchi, Leonardo.**—PAREGIATO SULLA PARALISI SPINALE SPASTICA. (On Spastic Spinal Paralysis.)
   REPERTO ANATOMICO E ISTOLOGICO.—DI DUE CASI DELLA COSI DETTA PARALISI SPINALE SPASTICA. (Anatomical and Historical Description of Two Cases of the so-called Spastic Spinal Paralysis.) Naples.
3. **Frigerio.**—STORIA ED AUTOPSIA D'UN IDIOTA SUB-MICROCEPHALO. (Description and Autopsy of a Microcephalic Idiot.) *Archivio di Psichiatria, Scienze Penale ed Anthropologiche*, 1883, p. 301.
4. **Report** OF COMMITTEE OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION ON THE TRAINING OF ASYLUM ATTENDANTS.
5. **Robertson, Alexander.**—ON THE TREATMENT OF THE INSANE. "Half-Yearly Report on the Town's Hospital Asylum, Glasgow."
6. **Dewey, R. S.**—ON CONGREGATE AND SEGREGATE BUILDINGS FOR THE INSANE. Reprint from the *Alienist and Neurologist*, January, 1884.

1. **Lardy on the Effects of Removal of the Thyroid Gland upon the Brain.**—Thanks to the increased boldness engendered by antiseptics, surgeons are going on cutting away different organs of the body, and it is found that patients can sometimes get along without them. The extirpation of the thyroid gland has been frequently performed in Switzerland and Germany, and in general with apparent success. Billroth, the celebrated surgeon of Vienna, has already removed the thyroid gland 120 times; and Kocher, the professor of Berne, has done so 150 times; but it has unhappily been found that some of these patients after this operation show a marked weakness of mental power.

This confirms what has been already remarked, in our report of Carlyle Johnstone's case of exophthalmic goitre with mania, that there seems to be some connection or correlation between disease or deficiency of the thyroid gland, and disorder or deficiency of the functions of the brain.

In the chronique of the *Annales Médico-Psychologiques* there is a quotation from a letter of Dr. Lardy of Berne, in the *Union Médicale* of 6th December, 1883, which gives us some details upon this interesting question. "Until last spring," writes Dr. Lardy, "the excision of the thyroid gland had been done without any misgiving; it was agreed that this gland was of no use, or at least that its removal did no injury to the general health of the patient. Therefore they not only removed one lobe, but sometimes the two lobes, even when one of them was still perfectly healthy. This is unfortunately not the case, and the total removal of the gland has a considerable effect on the cerebral system. Some of the patients became idiots. Professor Kocher has called this affection cachexia priva strumi. A paper on this subject, which he read to the Congress of Berlin last April, was turned into ridicule by that learned assembly, and Billroth, who might have been expected to know something of the matter, openly disagreed with Kocher. In the meantime the patients are there, and no one has found any efficacious means of relieving them. I have two at present under my care; one is a man forty-five years of age, father of a family, who can no longer work. He has been always cold and sleepy since the operation; he is only happy when in bed, and there is a difficulty in making him understand what is said to him, and in getting an answer. His face is wrinkled; and he has, in five months, changed to an old man, so that he could not be recognised. In a word, he has become a true cretin, and that since the operation. The other case is that of a woman, aged twenty-four, who was operated on, about two years ago, for hypertrophy of the left lobe. She was a skilful worker in a pottery at Thouna. After this operation she returned to her work. A year after she came back to have the remaining half of the gland removed, as it was growing rapidly. She recovered in fifteen days, but was obliged to give up her work three months later, not being able to execute it in an intelligent manner. I have now had her in my ward for two months without being able to obtain any answer from her; she is no longer like a human being. She lies the whole day in bed, eats with difficulty, never speaks, and is sometimes completely insensible. I cannot enlarge any longer on this subject. I will only add that I could cite a dozen of such, and more convincing cases. The first thing which strikes one is the stupid appearance of the face in those attacked by the cachexy. It is needless to say that in cases of cancer of the thyroid it would be preferable not to perform an operation than to make the patient an idiot."

2. **Bianchi on Spinal Spastic Paralysis.**—The affection called spinal spastic paralysis, tabes dorsalis spasmodica, or primary lateral sclerosis of the cord, is scarcely yet recognised as a separate disease, some holding that the symptoms grouped together under this head can be observed in various spinal affections. It is certainly a very rare disease. According to Dr. Bianchi it was first distinctly described by Budd in 1839. In Germany, Erb has collected the largest number of cases and given the first complete description of the disease. In his pamphlet, which first appeared in the *Clinica Contemporanea*, Dr. Bianchi devotes a few pages to the minute anatomy and physiology of the spinal cord, after which he describes the general physiognomy of spinal spastic paralysis. The disease does not consist so much in the symptoms, paralysis and contraction, as in their association and the order in which they appear. It generally commences with weakness in the legs, along with a sense of rigidity. The

tendon clonus of the knee and ankle is augmented; sensibility is unaffected; the functions of the bladder are not disturbed; and the faradic excitability of the muscles, as well as the galvanic excitability of the nerve-trunks, are well maintained. In most cases described, the rigidity prevails amongst the extensors of the legs. The limbs are straight like a compass, and in walking are made to describe the arc of a circle, which gives a peculiar characteristic to the gait. Dr. Bianchi observes that the knees often touch one another, as is seen in the engraving which he gives of a patient, twenty years of age, who had been afflicted with spinal spastic rigidity from early infancy. Dr. Bianchi includes under the same term cases where the rigidity consists principally in contractions of the flexor muscles. The patient is obliged to be in bed; the legs bent upon the thighs; the knees close to one another; the heels drawn up upon the nates; the feet bent downwards. Dr. Bianchi notes that the position of the toes does not follow the ordinary rule. When the leg is bent upon the pelvis, and the foot in dorsal flexion, the great toe is generally extended; and when the limb is in rigid extension, the great toe remains in plantar flexion. The rigidity of the muscles is sometimes greater at one time than another. It is a chronic disease, sometimes lasting many years, till the patient dies of something else. Dr. Petrone has published a case where, though the symptoms were very decided, the patient entirely recovered in thirty days.

Dr. Bianchi, who has collected all the published cases of this disease in European medical journals, observes, "The analysis of all these facts has left in me the profound conviction that spinal spastic paralysis can be reduced to one type of anatomical lesion. In some cases which tend to throw doubt on this conclusion, there is room to believe that an error in diagnosis was committed. In other cases there were concomitant lesions which modified the symptoms of the disease; but a more careful study will yet enable us to distinguish these mixed forms, especially when the neighbouring parts of the spinal cord have a determined function. The anatomical substratum of spinal spastic paralysis is grey degeneration of the pyramidal tracts of the lateral columns of the cord."

For the treatment, Dr. Bianchi recommends rest of body, and the avoidance of all painful emotions. He forbids stimulants, including tea, coffee, and tobacco. He is disposed to believe that benefit might be derived from the liquid extract of ergot, as recommended by Hammond; but attaches no value to nitrate of silver, iodide of potassium, phosphorus, or arsenic. Welden attributed the cure of his patient to auro-sodium-chloride. In the text it is "nitro-chorure di oro"; in a note he gives the formula—"Auro-natr.-chlorat, 0·30 aq. dest. 15"—from 15 to 20 drops.

Dr. Bianchi says that the rigidity of the contractions may be mitigated by large doses of the bromide of potassium, sodium, and ammonium.

Encouraged by his success in the treatment of a case of chronic myelitis by galvanism, he tried the continued current in a case of spinal spastic paralysis, but without any great success. After using this agent twice every week for three months, the only thing gained was a greater facility in extension through the efforts of the will, and a better rest at night, sleep being less broken by startings in the muscles of the legs.

At the end of his excellent treatise Dr. Bianchi notes that one of the patients described had just died, and in the succeeding pamphlet he gives the result of a very careful pathological examination of the appearances after death of this and another patient, whose symptoms are also described.

The first case had laboured under the disease for above twenty years. Three months before death he was seized with a more diffused spinal affection, and the cord was found reduced to a pulp, from the lumbar extremity to the root of the third dorsal nerve. Above this, the only lesion noted was traces of ascending degeneration in the columns of Gall, which presented a marked difference of colour from the rest when treated with logwood and picro-carmine. As Dr. Bianchi remarks, this case will not give us any help in clearing the pathological anatomy of the disease.

The second patient was twelve years of age, a deaf-mute, with a meagre development of the intellectual faculties. The difficulty in walking began a year before his death.

In the brain there was slight discoloration of the pia-mater and arachnoid, but no adhesion. The sub-arachnoid spaces contained a very thin layer of gelatinous exudation. There was an incomplete development of the temporo-sphenoidal lobe, especially of the first temporal gyrus. This was interesting in connection with the deafness. The convolutions of the islands of Reil were left uncovered. They were small and shallow. The first bridging convolution of Gratiolet was wanting, as is seen in the brains of some monkeys.

In the spinal cord there was degeneration of the pyramidal tracts of the lateral columns on both sides through their whole extent. The examination of the cord was pursued with much care, and the degeneration, consisting principally in great increase of the neuroglia and diminution of the nerve tubes, was traced through the medulla oblongata and crura cerebri, and corpora striata, to the centrum ovale in correspondence with the fibres going to the convolutions of the motor zones.

3. **Dr. Frigerio on a Microcephale.**—This was an idiot who died when twenty years of age. His height was only 130 centimetres; the left arm was a little shorter than the right one.

The head had the sugar-loaf form common with microcephales, the forehead tapering towards the vertex. The circumference of the head was 464mm.; the longitudinal measurement was 298mm.; and from ear to ear, 281mm.

The brain only weighed 200 grammes. The occipital and frontal convolutions were small. Nor was the brain entirely free from disease, for the grey matter of the left anterior median gyrus was affected with red softening. The corpus callosum was very thin. The cerebellum was better developed in proportion to the cerebrum. The foramen jugulare was larger on the right side than the left. None of the sutures were closed save the frontal one.

The creature was very deficient in cutaneous sensibility. He was greedy of food, and dirty in his habits. The intelligence was feeble, and he could not speak.

4. **Report of Committee on the Training of Asylum Attendants.**—At a meeting of the Medico-Psychological Association, held at Glasgow on the 21st February, there was presented the Report of the Committee appointed to consider the best means of improving the training of Attendants in Asylums for the Insane. This Committee recommended that a Manual of Instructions for Attendants in Asylums should be drawn up. It ought to include the following subjects:—An exposition of elementary physiology in practical matters, a description of the symptoms of bodily disease which an attendant might be expected to observe and report upon, directions for the general nursing of the sick and infirm, and also for the special management and care of the insane; and lastly, an explanation of the duties of attendants as servants to the institution. Four members of the Committee were entrusted with the duty of compiling this manual, which, when read, was to be laid before the Committee for consideration. As the number of members on the list of the Committee was

considerable, and many of them would possibly not take part in the proceedings, it was not thought advisable to send proofs of the Manual to each member, but all members were to get proofs who applied for them to Dr. A. Campbell Clark, the convener of the Committee.

The question of lectures to be delivered to attendants in asylums was also considered, and it was determined to invite reports as to the results of such instruction from those who had tried or should try it. The motion of Dr. Alexander Robertson, that the report of the Committee should be approved of, was adopted unanimously, and it was agreed to hold an early meeting of the northern members of the Association to consider the projected manual.

5. **Dr. Alexander Robertson on the Treatment of the Insane.**—In the course of his report, Dr. Robertson remarks:—"Nearly independent of all such treatment, nature, assisted only by good general hygienic conditions, can, and occasionally does, restore the healthy balance within the system. But its forces, powerful for good, are also powerful for evil; having acquired a wrong bias, they not infrequently hurry on to the ruin and destruction of the delicate tissue of the brain. They ought to be guided, possibly stimulated, and, if requisite, corrected in their course. Medicine can sometimes do these things. Most assuredly in many cases recovery is hastened, and now and again almost entirely effected, by medicines, baths, and other medical remedies. In last report it was stated that treatment by electricity was apparently exerting a very beneficial influence on a female patient. I have now the pleasure of recording that the improvement steadily advanced, and that she was dismissed, fully recovered, in the month of March, happy and grateful; and, further, that she continues well. Her mental disorder had lasted for the long period of seven years. The case, which is a remarkable one, will be published in the next number of the *Journal of Mental Science.*

"Much benefit is also occasionally derived from the regulated application of heat and cold to the head, which is effected by the circulation of water at graduated temperatures through special apparatus. This mode of treatment was introduced into medical practice by the writer in the beginning of 1871. It is applicable to other parts of the body besides the head, and suitable apparatus for the head, chest, spine, &c., was designed by him in 1870. (See *British Medical Journal*, November and December, 1871.)"

6. **Dr. R. S. Dewey on Congregate and Segregate Buildings for the Insane.**—In the course of his paper, Dr. Dewey observes that "the almost universal notion that insanity *reverses* all the conditions of sanity, instead of simply modifying or holding in abeyance natural activities, has been more mischievous in its effects on the progress and improvement in the management of the insane than any other cause."

No one will blame Dr. Dewey in thinking that "a large, close asylum," where "indoor life, spent in a single long hall having barred windows and locked doors, with parlour, bedroom, closets, dining-room, &c., all concentrated within its limits," to be much inferior to an institution which possesses a number of different buildings for its patients; which has an infirmary ward for the sick and delicate; a parole ward for those who can be trusted; a refractory ward where all who need it can be more securely kept, and all of these separated and under different and specially adapted regulations.

In all well-managed asylums in this country such separate accommodation may be found in one form or another, and the sub-division is often carried further; but no arrangement of separate buildings can be so devised that a large asylum can be made to resemble a home. The mere size will always prevent it. The individual tastes and wants of each separate unit of the community must give way to the convenience of the whole, and, indeed, the comfort of the inmates is sometimes sacrificed to the desire or need of making an ostentatious display for the benefit of visitors. Segregate buildings avoid some of the evils of large establishments, but are not without their own disadvantages. They are more difficult to supervise, and, in this country at least, cost more to erect and maintain. Dr. Dewey tells us that the average cost per head for the building of a congregate asylum in the United States is $1000, and that this figure would be greatly exceeded if each asylum was built only for 250, since the outlay for the "plant" is almost as great for that number as for 500. On the other hand, very good and substantial detached buildings, generally two storeys in height, and corresponding more to the house plan, have been erected for sums varying between $200 and $500, but on an average for about one-third the cost of the congregate asylum *per capita.*

To comprehend this, we must suppose that the quality of the work and the kind of accommodation were much inferior in the latter case.

Dr. Dewey calculates that every State in the American Union with a million inhabitants has, or shortly will have, to provide asylum accommodation for at least 1 in every 400 of the population.

W. W. IRELAND.

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## *REVIEW.*

**Die Neueren Arzneimittel in Ihrer Anwendung und Wirkung.** By Dr. W. F. LŒBISCH, Professor in the University of Innsbruck. Second Edition. Vienna: Urban & Schwarzenberg, 1883, pp. 226.

THIS work, which has most deservedly passed into a second edition, is composed of a series of essays upon the actions and administration of the newer remedies. To the busy practitioner it comes to be a great difficulty to keep his knowledge up to date in regard to the recent developments of therapeutics; and such a work as this will no doubt prove very useful.

The articles are arranged, as follows:—There come first various bodies of the fatty series—iodoform, chloral-hydrate, butylchloral-hydrate, trimethylamin, propylamin, amylnitrite; then follow the aromatic series, which Dr. Lœbisch divides into groups, according to their chemical character:—

*a.* Hydrocarbous.
    1. Benzol.
    2. Naphtalin.
*b.* Monatomic phenols.
    1. Phenol.
    2. Thymol.
    3. Naphtol.
*c.* Diatomic phenols.
    1. Brenzkatechin.
    2. Resorcin.
    3. Hydrochinon.
*d.* Triatomic phenols.
    1. Pyrogallol.
*e.* Acids of the aromatic series.
    1. Benzoic acid.
    2. Salicylic acid.
    3. Kresotinic acid.
*f.* Aromatic body of undetermined constitution.
    1. Chrysarobin.

The author next considers such alkaloids as muscarin, pilocarpin, eserin, hyoscin, homatropin, duboisin, gelsemin, and apomorphin, and finally treats of Pancreatin and Quebracho.

Each of these articles commences with a short description of the source of the remedy in question, after which its physiological action and therapeutic employment are each discussed, and frequently Dr. Lœbisch adds a few notes as to the best methods of administration. All the details are clearly and concisely given, so much so as to make the work exceedingly valuable.

The only criticism we feel inclined to make is that the work is a little unequal, some substances which have been found but little suited for use being treated of at considerable length, whilst we miss altogether several new remedies —such, for example, as enonymin—which are unquestionably of very great value in practical medicine.

Dr. Lœbisch has done good service in the preparation of this work, which we would be glad to see translated into English.

J. Graham Brown.

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# OBITUARY.

## THE LATE PROFESSOR BALFOUR.

EMERITUS PROFESSOR JOHN HUTTON BALFOUR died on Monday, the 11th February, at Inverleith House, Edinburgh. The last illness, like several previous ones, promised to pass off. Dangerous symptoms only appeared late on the previous evening.

Dr. Balfour was born in Edinburgh in 1808, and had thus attained his 75th year. He had outlived several generations of local scientific men, notably among these that of his famous ancestor, John Hutton, author of "The Theory of the Earth," as well as that of the distinguished band of medical teachers which included Alison, Goodsir, Gregory, Syme, Simpson, and Christison, of whom, indeed, Dr. Douglas Maclagan is now the surviving representative.

The memory of Balfour must remain a prominent landmark in the college career of many medical practitioners throughout the world. More than seven thousand pupils have listened to his academic prelections; and for thirty years, as Dean of the Medical Faculty, he was brought into closest relation with aspirants to the touch of that mystic cap which licenses to heal. His numerous text-books have introduced many more beyond the Edinburgh University to the study of botany. In truth, three names for many years comprised the standard text-books to floral science, and Balfour's was one of them. The largest botanical class in Britain was perhaps the result of the popularity of the Edinburgh Medical School, increasing with the years. But the zeal and energy of Balfour came in fit time with the new circumstances. More than all, the enthusiasm of the Professor was contagious. The feats in Highland herborising excursions, long years ago, under such a leader, remain green spots in life's memories with many of his pupils. Besides, not a few have thus been induced to become specialists in his favourite science, and have done much for its progress in all parts of the world. The admirable system of practical demonstrations in histology and plant classification formed, with the excursions, a marked feature in Balfour's method of teaching, adding to the charm of a class which to most was the first introduction to the study of living nature, after years spent in acquiring classical knowledge.

Balfour graduated as M.D. of Edinburgh in 1831, becoming a Fellow of the Royal College of Surgeons of this city in 1833. After spending some time in perfecting his medical knowledge in Paris, he settled down in Dundas Street as a practitioner, being for a time assistant to Sir George Ballingall. In 1840 he became a Lecturer on Botany to the Extra-mural Medical School. He founded the Botanical Society of Edinburgh in 1836. In 1841 he was elected to the Botanical Chair in the University of Glasgow, in succession to Dr. (afterwards Sir) Willam Hooker, then transferred to Kew. On the death of his old teacher, Professor Graham, he was elected by the Town Council to the Chair of Botany in Edinburgh in 1845. He continued in this his life work, with the concomitant office of Regius Keeper of the Royal Botanic Gardens, till 1879, when he was succeeded by his friend and pupil, Professor Alexander Dickson, M.D., then of Glasgow.

Professor Balfour became a Fellow of the Royal Society of Edinburgh in 1835, and was for ten years its Secretary. He was also a Fellow of the Royal and Linnean Societies. Three of the Scotch Universities conferred on him the degree of LL.D. Dr. Bayley Balfour, his second son, is the newly-elected Sherardian Professor of Botany in the University of Oxford. His brothers, Andrew and Thomas, as well as his nephew, Dr. John Duncan, are eminent members of the profession.

Andrew Taylor,
*Secretary to the Botanical Society.*

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# THE EDINBURGH CLINICAL AND PATHOLOGICAL JOURNAL.

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## *ORIGINAL ARTICLE.*

### NEW FORM OF ETHER MICROTOME.

By Charles W. Cathcart, M.B., F.R.C.S.
LECTURER ON ANATOMY, SURGEONS' HALL, EDINBURGH.

In venturing to add another to the many forms of Freezing Microtome which have been produced of late, I may begin by explaining what objects I had in view in devising the present apparatus, as a preliminary to describing its mechanism. These objects, briefly, were—(1) to obtain a simple ether-spray producer which would not allow any ether to escape unevaporated; (2) to have an efficient microtome for use with the ether-spray, which would be so simple in its mechanism as to admit of

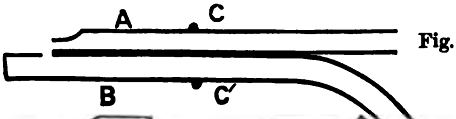

Fig. 1.

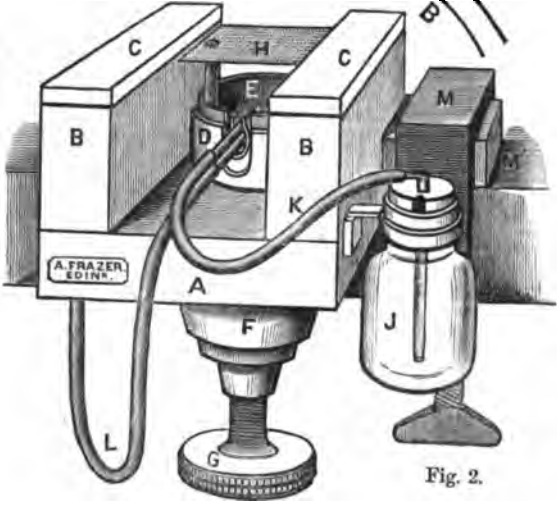

Fig. 2.

manufacture and production at a comparatively low cost. After a considerable amount of time and trouble, I have succeeded in producing a Microtome which can be sold at 15s., including the spray-producer, and which freezes ¼ of an inch of tissue in 1½ or 2 minutes, using in the process about 2 drachms of ether, which cost something less than a farthing. The instrument may be described under the heads of (1) the Spray, (2) the Microtome.

The spray-producer (fig. 1) works on the same principle as the scent sprays which have been in use for a long time, where a jet of air playing across the top of a tube draws up the fluid from its interior by tending to make vaccum in it. The bellows used are the ordinary hand ones sold for carbolic and other spray-producers, these being as cheap and efficient as any that can be got. In working at the spray points, I began by selecting the size of air-hole that these bellows could easily feed with a continuous blast of air, and then, experimenting with various sizes of vaccine tubes, I found at last, that with the smallest size, I could produce a spray which, at about half an inch's distance from any object, contained just as much ether as the given blast of air could evaporate. There was then of course no running of the ether to waste, while at the same time an intense cold was very rapidly produced. The method of adapting the spray points to one another is a modification of the ordinary one, and is adopted from a German model. It is as follows:—Two fine brass tubes are taken—one (A) is brought to the requisitely fine point for the ether; and the other (B), being closed at the end, has the air-hole bored at the side, a little behind the closure. The point of the ether tube is then placed over the middle of the air-hole, and the tubes, laid one over the other, are soldered together in this position; the free ends of the tubes are then connected with the air bellows and the ether bottle respectively by means of india-rubber tubing, and this part of the apparatus is complete.

The microtome (fig. 2) consists of the framework, and the mechanism for raising the section. The framework is of half-inch mahogany, and is in the form of a base with two upright parallel pieces screwed on to it. The base (A), which is about 2½ by 4 inches, is bored to allow the tubes for raising the section to pass up between the parallel pieces, and has a projecting part at one side to allow of its being clamped to the table (M′). The two parallel parts (BB), which are of the same half-inch mahogany, stand about 1¼ apart; they are 4 inches long, and, rising to 1 inch high, each carries on the upper surface a piece of quarter-inch plate-glass (CC) of the same length and breadth as itself. This is to support and steady the knife as it is pushed across the tissue to be cut, while the fact of the tissue coming up between the plates allows that part of the knife which is to cut the specimen to be kept free of contact until it touches the tissue.

The method of raising the section plate is as follows:—About 2 inches of accurately-fitting double brass tubing are taken, and into the outer one (D) the nut (F) of a fine screw is firmly soldered at what is to be its lower end. The inner tube (E) has the section plate fixed to its upper end by two screws, with, however, two small pieces of vulcanite intervening between the plate and the tube, so as to disconnect them as much as possible, and into the lower end of the inner tube a transverse bar is fitted, against which the screw coming through the outer tube presses when it is desired to raise the section plate to which the inner tube is attached. By means of a small screw-nail fixing the outer screw to the bar in question, the inner tube can be withdrawn, as well as pushed up whenever that movement is required. A milled head (G) has been substituted for the ordinary capstan arms, for turning the main screw round.

The spray points are introduced at the requisite distance below the section plate by cutting a narrow slot through both tubes, and fixing to the inner one a piece of bent brass, into which the spray points can be pushed and held firmly, while a small shoulder on the latter prevents them from passing beyond the centre of the under surface of the plate.

Finally, the ether bottle (J) is fastened to the side of one of the upright pieces of the framework by a simple hook and eye, the hook being fixed to a collar round the neck of the ether bottle, and the eye to the side of the framework in question. It will be seen, I think, from this description, that with the exception of the fine screw for raising the tissue, the details of the mechanism are very simple, hence the low price at which it can be sold; and in practice it has been found to work admirably.

Dr. Neil M'Leod of Shanghai, China, has suggested the adaptation of the ether-spray for Williams' section cutter. This has been found useful by several workers, who had already been accustomed to work with that instrument.

The microtome, as I have described it, can be had from Mr. Fraser, optician, 7 Lothian Street, Edinburgh, who has most carefully carried out my suggestions as we went along, and who has devised a part of the mechanism himself.

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# *MEETING OF SOCIETY.*

## MEDICO-CHIRURGICAL SOCIETY.

A SPECIAL MEETING of the Edinburgh Medico-Chirurgical Society was held on the evening of Wednesday, 27th February, to hear and discuss the Address by Sir Andrew Clark on Catheter Fever, which was published last week. The meeting was very largely attended, and Dr. **Littlejohn**, President of the Society, was in the chair.

Dr. **Patrick Heron Watson**, who was first called upon from the chair to speak on behalf of the Society, said he was sure he only gave words to the feelings of the meeting when he expressed his own sense of the obligation under which they were laid to the eminent gentleman who had read that eloquent paper. In the eloquent, he might almost say poetic, remarks with which Sir Andrew had prefaced the paper, he was sure he had rendered again to this school, and to the eminent teachers with whom he was acquainted while a pupil of this school, a just tribute of regard for which they begged to thank him, and in which they entirely sympathised. The subject which had been so ably introduced was one which, he dared say, had exercised the minds of surgeons, pathologists, and clinical teachers ere now. But he was confident of this, that the remarks which Sir Andrew had brought before them on that occasion, and those he had made in another place with which probably they were all equally well acquainted, and had read at the time they were published with the deepest interest and highest respect, had probably focused the matter in their minds in a more consecutive and definite form than it had before attained. The matter was one so deeply important for clinical investigation, that they could not express too gratefully their sense of what Sir Andrew Clark had done in enforcing it upon their attention.

What, then, was this condition? It seemed to him that, as it had been described to them, there was one antecedent which was always met with, and that was the introduction of an instrument, possibly but once. But, on the other hand, it might have been introduced for some time, the patient having entered on what had been called "catheter life" for a period of some weeks before any unfortunate symptoms manifested themselves. But when these did occur, the initial symptom was undoubtedly a rigor; and that occurred not usually immediately after the introduction of the instrument, but usually upon the first occasion that water was passed after the passage of the instrument. But it was, even, not usually the first time. The patient might even make water again and again in small quantities, apparently from the irritation produced by the introduced instrument before the initial rigor appeared. But, when the symptoms did occur, they were followed by more or less febrile disturbance, more or less copious diaphoresis, and more or less complete return under favourable circumstances to the condition in which the patient was before the rigor seized him. These conditions might, however, repeat themselves again with each subsequent effort to micturate. Now, that might be said to be the outside of what might be called the physiological condition following the introduction of a catheter, attended with this condition of catheter fever. But there was one point to be noted here,—and, perhaps, they might say that his experience had been very much limited to the one side,—and that was that the condition was met with only in the male. It did not occur in the female. That, at least, had been his experience. Now, in cases in which they had this condition existing—first, of rigor, and then of fever—the character of the fever, as it usually manifested itself, was very slight and ephemeral, but it might be much more grave. The first was not usually accompanied by any great rise of temperature. But, on the other hand, where they had the second form of fever referred to, they would find that the temperature sometimes ranged as high as 105°F., and that the type tended towards that of a typhoid character, as the older authors called it, the patient lay sunken in bed, with a brown-furred tongue, muttering speech, and incoherent ideas. Now, what was the rationale of such a case? How frequently had been impressed upon all young pupils the importance, the first time an instrument was passed along the urethra, of having the man in the recumbent posture! If he were not so, he ran the risk of toppling down upon the unwary operator. The passage of the instrument, as it glided through the prostatic canal, gave rise to a storm in his nervous system, inhibited his heart's action, and the man lost consciousness and fell on to the top of the surgeon, or subsided on to the floor. The loss of consciousness was sometimes epileptiform in character, being attended with more or less convulsive movements on one side. In such cases the patient usually recovered when he reached the horizontal level, and it was by no means followed by any further febrile disturbance. But it pointed to the element in the disturbance of the nervous system, which Sir Andrew Clark, he believed rightly, indicated, working in such a manner as to disturb the most important functions of the body, the circulation, respiration, and nervous consciousness. In other instances, they found that, after the instrument had been passed, for twenty-four hours there was no disturbance of any kind. Then, the rigors were not of a very marked kind, but they found that there was a marked diminution in the patient's urine. He had passed perhaps a very large quantity previously,—in a case which he should shortly refer to, as much as ℥cxx. This was diminished day by day by ℥xii.; and, at the period of his death, eighty days afterwards, it was reduced to comparatively a very small amount, the urine had ceased to present the aspect of ordinary urine, was muddy, thick, and had a brownish-red appearance, was largely charged with blood corpuscles and with pus, and with albumen, corresponding to these. But before the passage of the fatal instrument—should he call it—this man's urine, although large in quantity, and of low specific gravity, presented no other abnormal qualities. Then, another fact requiring attention, in affording a *rationale* of this urethral disturbance, was, that the patient might die very rapidly after the development of the first rigors. He had known a patient in such circumstances die within three days, with a very marked diminution of the quantity of urine, and the presence in the urine of no abnormal constituent except blood, which might have been attributed, had there been no examination, to the introduction of the catheter scratching the surface of the urethra, but which there was reason, from post-mortem examination, to believe came from the malpighian corpuscles. There was recently a case which convulsed the Upper Ten Thousand, where a nobleman of high character and repute, who had served his country well through long years, but who was a little nervous about his health. It was supposed that he had some urinary affection, and, on the advice of his medical attendant, a surgeon passed a bougie in the morning. He got up, felt miserable all day, was constantly making water, complained of feeling very ill, and sent for his medical adviser; and that gentleman rather pooh-poohed the idea of there being anything the matter with him. He was not inclined to go to dinner, but was persuaded to dine, and said he felt better when he took some champagne. He retired in the evening, and was found dead on his floor in the morning, having apparently micturated as the last act of his life. On post-mortem examination there was found fatty disease of the heart, and a calcareous aorta. The explanation of the result here was that the effect of the entrance upon catheter life was to give rise to a degree of nervous irritation, which, in a man with a heart and aorta in such a condition, incapable of standing a reflex cardiac inhibition, was followed by a fatal result. There was one other result which he might shortly mention, and which he had observed again and again in cases in which the symptoms had been far advanced, and that was that a herpetic eruption was exceedingly apt to develop itself upon the lips and face of a patient affected by this urethral fever. How were they to explain this disturbance and these phenomena? First, he would ask—Was the passage of a catheter essential for the development of any portion of these symptoms? and he was inclined to answer that question in the negative. One was perfectly aware that other conditions might give rise to it—as, for example, the passage of a calculus along the urethra. The passing in large quantities of uric acid or oxalate of lime, or of a mixture of urine with blood-clots, or of air or gas in the urine, and that without any decomposition of the urine, would give rise in certain patients to the development of such results. It was familiarly known that one of the symptoms of advanced stricture of the urethra was that when the patient made water he was liable to sudden attacks of a febrile character, preceded by rigors, and spoken of by older writers as analogous to ague in their nature. The first notice he was aware of when such symptoms are mentioned was in the case of Henri Quatre, who suffered from stricture, the consequence of early indiscretions, and where treatment for ague was adopted in the first instance. Then, there was another inflammatory urethral condition which, although preceded in its advent with the development of nothing so severe as rigors, still was not far dissociated from the present subject of consideration—that was, gonorrheal rheumatism. The development of this complication occurred between five and eight weeks from the commencement of the attack, and it might be much later, and it was most apt to occur in those who had the prostatic portion of the urethra involved—the sensitive part of the urethra. The great peculiarity of this condition was that the characteristic flocculent-looking effusion into the affected joints and capsule of the aqueous humour rarely or never terminated in suppuration, and the joints and eye, although long affected, were usually restored to their normal condition under suitable and adequate treatment. These were facts which he thought required to be taken into consideration, if they were to arrive at any satisfactory result as regarded the real nature of urethral fever, and decide upon the pathology of its genesis. It was not due to any severe injury inflicted upon the canal. It was not found in rupture of the urethra, nor specially where the catheter had been rudely used, and extravasation might have followed. Rupture of the bladder within the pelvic cavity was not by any means accompanied by the symptoms that they had just heard so graphically described. It was not, therefore, he believed, to be assumed to be due to the absorption of urea from the bladder, or injury to or abrasion of the surface of the urethra, or any purulent condition developed in the part—in other words, to a *quasi* pyœmia. Was it due to the introduction of septic germs by the catheter? In some of those cases where what was called an antiseptic catheter had alone been employed, they did not find that those results were altogether avoided. And, again, where an antiseptic catheter had been alone employed, and the patient had died, they had found as the result this interstitial nephritis, so-called,—characterised by numerous minute abscesses throughout the substance of the kidney, containing in them both bacteria and micrococci. He begged to remind the meeting of a specimen he had exhibited two years ago of this condition, and also involving the ureters and bladder, which they might have reasonably called diphtheritic kidney, ureter, and bladder. Then, again, this urethral fever was certainly not connected with ague, for it occurred in persons who had never suffered from ague. He was himself inclined to attribute the first step in this condition of urethral fever to the irritation of the prostate acting upon the spinal centre and producing reflected changes, which had most injurious effects upon the malpighian glomeruli and capsules, and the capillary plexus passing from these towards the renal veins, in which they found after death minute clots, and not only minute cells of the leucocyte type occupying the spaces between the tubules, but blood extravasated in this region, and corresponding to the presence of blood in the urine, with marked diminution of the urinary excretion. As to the conditions which preceded and gave rise to this state of things. These, when surgical, were most frequently in connection with retention caused by an enlarged prostate. But it was not always so, as was, he thought, shown by a preparation which he now produced from a case in which a fatal result occurred in connection with the patient's introduction to catheter life on account of simple retention with over-distention of the bladder. The patient was fifty-three years of age, his features were pallid, transparent, bloodless; and he complained of constant thirst. He had been supposed by the practitioner under whose care he had been to be suffering from diabetes insipidus, but as he (Dr. Watson) found the bladder distended to above the umbilicus, he came to the conclusion that the state of his health might reasonably be attributed to consequences evolved out of this back-pressure on the kidney structure. For the first two days after the regular introduction of the catheter, he remained perfectly well. It was always an antiseptic catheter that was used. But after that, the urine steadily diminished day by day, and on the last day he passed a little grumous bloody fluid, free from fœtor and free from micro-organisms of any kind. The bladder was found to give evidence of an old standing obstructive condition in a man of fifty-three; but there was no stricture, no prostatic disease. The ureters were very much distended—the condition exhibited being nothing to what they were at the time of the examination; there were suppurative results beneath the capsule of the kidney, and the kidney structure was very much thinned, and had throughout innumerable small abscesses as the result of this interstitial nephritic condition. He (Dr. Watson) should be rather inclined to call this fever—not catheter fever, but urethral fever. It essentially depended upon something—whether catheter, calculus, blood-clot, or only sand in the urine, which irritated the prostatic part of the canal. In some instances it was both trivial and evanescent in its effects, and, in such circumstances, he should be inclined to say it was so because it found no diseased internal organ on which to tell. In the other instances where a serious or fatal result accrued, he should be inclined to agree with the view generally adopted by surgeons—viz., that the patient was suffering from serious lesion of some important internal viscus, and that the dangers were chiefly to be found in connection with a feeble heart, diseased arteries, and kidney disease, which might be either original or as a result of over-distention of the excretory passages; and that, where this condition of catheter or urethral fever was set up as the result, the turning point in that result was the influence it exercised upon the glomeruli and venous capillary system of the renal structure. The prognosis in such cases depended (1) upon the degree of rise of temperature, and (2) on careful investigation of the patient's urine from day to day. As regarded treatment and prophylaxis, they certainly found that the constant emptying of the largely distended bladder, with probably distended ureters and kidneys, so exceedingly apt to be followed by serious consequences that precautions of every kind should be adopted; that the use of a rigid metallic instrument was more likely to give rise to these symptoms than a soft one, but that even this was not sufficient to prevent altogether such results, and that antiseptic precautions should certainly be adopted. As regarded remedial agents, in his experience the employment of quinine and bromide of potassium or opium for some days before the introduction of the catheter, and continued for some time after, followed—if the febrile condition were established, by the use of tincture of perchloride of iron and digitalis during the whole treatment,—was what had secured him the most satisfactory results; while the employment of the vapour-bath or lamp-bath had afforded most satisfactory aid where the patient's skin could be brought readily under their influence.

Professor GRAINGER STEWART, who was next called upon by the President, said that after the very able speech which Dr. Watson had just delivered, and the interesting address of Sir Andrew Clark, he should not detain the Society in discussing the different aspects, either of the subject proper which Sir Andrew had brought before them, or of those very interesting side suggestions which occurred so copiously during the address. There were many things which one would gladly hear fully discussed, besides the subject of catheter fever proper; but what he should have to say would have to do specially with that. Of course it was slowly that the physician gathered experience in regard to these things. Surgeons, after being in practice only a few years, would have seen more of these cases than would physicians after twenty-five years' experience. But he had certainly seen three different conditions. First, that which had been described so well—the acute rigor—a formidable, morbid symptom following the introduction of an instrument into the bladder,—such an attack as, he thought, could not be conceived to be due to anything except reflex influence from the nervous system. There was, second, a condition which he had seen not unfrequently, where, following upon such interference, and often as the result of long-standing disease of the urinary tract, extensive sloughing, or at all events a very nasty type of inflammation in the mucous membrane of the bladder, had occurred—the contents of the bladder being fetid, ammoniacal, containing quantities of mucus and blood, and along the whole line up to the kidney the tract continuously inflamed, the pelvis of the kidney acutely and intensely inflamed, and the substance of the kidney itself studded with abscesses,—ordinary surgical kidney, in fact. But further, between these two, there was another form of disease which he had had the opportunity of studying, and this was the one to which Sir Andrew Clark wished specially to direct attention. He might refer by way of illustration to a case of this kind. A gentleman from the country consulted him about an excessive discharge of urine. He passed an excessive quantity of water in the day—about ℥cl. On examination, besides his urinary troubles, he had disease of the aortic valves, and a good deal of emphysema of the lungs, and acute catarrh of the stomach—an extremely distressing combination of maladies. Under treatment he improved considerably in respect to the stomach and heart, and the breathing also became more natural and easier. But the urinary symptoms became worse, and, after a time, he (Professor Stewart) thought it right to ask a friend to draw off the urine. The patient at once experienced very considerable relief. The quantity of urine for about a week continued to be distinctly less than it had been, not in the unfavourable way spoken of by Dr. Watson, but in a somewhat favourable way. He wished to allude for a moment to the cause of the polyuria met with in these cases of old-standing prostatic disease, in which from ℥c. to ℥cl. of urine was passed in the twenty-four hours. So far as he had been able to see, it was always associated with dilatation of the ureters and pelves of the kidney, and he had met with it in cases of hydro-nephrosis from other causes. In a case of hydro-nephrosis in a boy, which he regarded as a congenital case, there was no symptom except polyuria, no bladder symptoms; they found, on post-mortem, simply a dilatation of the ureters. It appeared to him that, in some way or other, this condition gave rise to polyuria. Possibly it might be that, the counter-pressure against the blood-pressure in the malpighian tufts being diminished, a greater transudation ensues. Whether that guess was correct or not, he would not say; but he was well assured of the fact. Well, after some days, the patient was able to return home. He had learned to use the catheter himself, and with all precautions; for he (Professor G. Stewart) believed in antiseptic catheterism, as in other forms of antiseptic treatment. But he came back about a week later, when his urine had become somewhat milky, with just a little trace of pus in it. A little later, he came again, when he was manifestly unfit to have come from the country; and he returned home, and died in the course of a day or two. A post-mortem examination showed that the prostate was greatly enlarged, the bladder enlarged and inflamed to a very considerable extent, and the ureters dilated and their walls congested,—the kidney substance being apparently quite natural. Now, that was a different condition from either of the varieties first referred to. So far as could be made out in that case—and an experienced pathologist was one of those who made the post-mortem—the kidneys were natural. Now, the question came to be—What was to be their theory of the fever and the result in such a case as the last? He had no doubt that a certain influence might be assigned to reflex action. Again, he believed that direct extension upwards of the inflammatory action along the line of the urinary tract often had a share in developing febrile disturbance. But, he thought that the most important influence was upon the system to the septic element. He thought that in many cases there was a true septicæmia. He believed he had never seen anything he would call uræmic. But, on the other hand, there were, he thought, distinct evidences of what they would call septicæmia in most cases. In regard to the influence of the altered condition of the pressure in the vessels in the kidneys, ureters, and bladder,—he believed that to be of great importance. He believed that, when there had been for a long period of months or years an habitual over-distension in these parts, when this was removed and the parts fell together again, there must be an extraordinary congestion of the parts, and, consequently, a tendency to inflammatory action; and by the coming into contact of portions of mucous membrane normally separated, bacterial or other elements which might have been introduced had an opportunity of accumulating and developing. If he did not mistake, this was a very important element in such cases. He wished, further, to say how heartily and thoroughly any little experience of his made him endorse the principle of rest and quiet and low diet for those beginning catheter life. And, in addition to what Dr. Watson had mentioned, he thought, unless there was an indication against them, that opiates, or some equivalent to opiates, in addition to the bromide of potassium, was very desirable.

Professor **Chiene**, having been called on in turn, joined in the expression of interest in, and thanks for, the address of Sir Andrew Clark. The discussion which had followed the address in London, and the remarks which Sir Andrew had now made in connection with the same subject, and the result of the consideration of the cases which he had brought before them, led him (Professor Chiene) to suppose that the patients died of septicæmia. Sir Andrew Clark had detailed in the London address three cases—one occurring in the year 1850, one in 1865, and the third, that of a nobleman, at a later period. Two of these cases were fatal; the nobleman recovered. He had that night given them two other cases—one of them having occurred with Mr. Howard Barrett, and the other with Mr. Merryman. These cases he (Professor Chiene) must take as types of the disease which Sir Andrew Clark had so well described to them. He accepted all the facts, and he did not want to discuss this question in connection with unhealthy kidneys. He accepted the condition of a perfectly healthy kidney in a person on whom the catheter had been passed in consequence of some trouble in making water, and he wanted to restrict what he had got to say to that condition. He went back in this matter to about the year 1865, and he had brought there two preparations, which were bladders of patients who died in his own dispensary practice between 1865 and 1868. In the year 1869, he showed those cases to Dr. Wyllie, who told him, in answer to his question if he could give him any idea of how these patients died with symptoms such as just described, that he believed that he (Professor Chiene) had introduced with the instrument he had used septic matter into the bladder. He had at once acknowledged the fact that the urine appeared healthy the first time he drew off the urine, and that, after the first or second occasion, it became muddy and then foul-smelling and ammoniacal. Those patients, Dr. Wyllie said, had died of septicæmia. He (Professor Chiene) had observed other cases thereafter, and he thought he had seen enough to say there that night that he felt more and more sure that the statement of Dr. Wyllie's was the correct statement in regard to the cases of Sir Andrew Clark. He did not deny that there might be other causes of death, as from irritation of the urethra, and so on. But he believed that the great majority of these cases were septicæmic, and he was very pleased indeed to find in the London address what was to him a comforting statement: "The urine of catheter fever is always loaded with micro-organisms of various kinds." That fact supported the theory brought under his notice by Dr. Wyllie, and of which he had seen abundant evidence since in clinical observations. This septic matter might enter the bladder in four different ways:—(1) by an impure instrument; (2) occasionally, and rarely he believed, by air rushing in along with the catheter which had been introduced; (3) and of this they had a case in point at present,—a condition of septic urine, by passing along an inflamed urethra which had been irritated by the prolonged use of instruments. In this particular case the man was suffering from fracture of the spine, and had been in the wards since the beginning of November, and required his water drawn off. His urethra became inflamed, he (Professor Chiene) believed, through the antiseptic agents used setting up what he would like to call carbolic gonorrhea; and the organisms passed up along the membrane, as in putrefactive cystitis, in consequence of the use of instruments. And (4), it might pass between the membrane and the catheter, where the last was tied in. He believed in the methods that were now adopted to purify instruments by many surgeons, in this city at least, and that they were such as to prevent cases of catheter fever such as Sir Andrew Clark described. Sir Henry Thompson used boiling water, and, if they were to wrap the catheter in cotton-wadding thereafter till used, he was prepared to say that was an antiseptic catheter, and that, if anointed with carbolic oil, that was a safe instrument. But if they laid it down, as it cooled the time would come when septic organisms might fall upon the surface and eyelet of the catheter. He believed it was infinitely better and safer thoroughly to purify the catheter. He had used until this year a 1-20 solution, and this year, after Koch's experiments, corrosive sublimate. He had not yet found an antiseptic solution—and this was a point as to which some work was to be done—which would irritate the urethra so slightly that they could use an instrument for a long period. He had been using, for instance, eucalyptus oil, and still they had the same result. There was one more remark he had to make, and that was a personal one. Sir Andrew Clark had said that this point had not received adequate expression either in surgical works or in surgical teaching. But he would find the point stated shortly in the small work which the University students got as a text-book for the first part of their course of surgery; and he had spoken of it as a form of septicæmia, since he commenced lecturing on surgery in the School of Medicine. The importance which some of his students attached to this point was shown, too, in case of instruments which had been devised by one of them specially to prevent septic matter accumulating at the extremities of the instruments. (See *Lancet*, 1st Sept. 1883.)

Professor **Annandale**, after adding his special thanks to those already given to Sir Andrew Clark for his address, said he wished to contribute to the discussion a few brief and practical remarks. He would, in the first place, confine his discussion of the question to what he believed to be Sir Andrew Clark's view of a special form of urethral fever, in which no apparent disease of the kidney could be discovered adequate to account for death. He was quite prepared to admit that this condition could occur, and he wished to direct his attention to the four causes which Sir Andrew had mentioned as probably producing this condition; and, in the last place, as a surgeon, to give a few hints which he hoped might tend to prevent this condition occurring. In the first place, Sir Andrew had mentioned the local irritation produced by the passing of the instrument. In regard to that, he quite believed that might be the case, from reflex irritation, whether the prostate was enlarged, or no matter what the condition of the urethra. In the second place, the condition was said to be the result of that local irritation acting upon the general system. He believed also in that. The third cause was said to be septic, following the introduction of the catheter, which he also believed in. And, lastly, there was the sudden emptying of the bladder and ureters by drawing off water; and he believed that also might sometimes be the case. He should now simply venture to offer the Society a few hints in regard to the prevention of these causes. The first was never to pass an instrument into the urethra or bladder without some care, and unless they knew something of the patient beforehand. He had learned from experience the danger of doing this, and should say to all young, and even to old, surgeons, that when a patient came to them for the first time, they should never pass a catheter without first inquiring somewhat into the condition of the patient and his history. Another hint was that before introducing the instrument, they should take care that it was properly warmed. Mischief was often done by the introduction of a cold instrument. The second cause of fever depended on how they treated the first; and in regard to the third cause, he was quite at one with Mr. Chiene that great care should be taken that aseptic precautions should be used to prevent the entrance of septic materials into the urethra and bladder. Lastly, in regard to the sudden emptying of the bladder, he was rather inclined, in some cases of prostatic retention, or of retention from stricture, to advise that, instead of passing the catheter when the patient came the first time, they should rather aspirate the bladder above the pubis. He had done this frequently without any bad consequence; and he could not help thinking this was a safer method than that of passing a catheter into the bladder. He would again, before sitting down, impress upon every one the point which he thought was of importance, and that was not to pass a catheter or other instrument into the bladder without first knowing something of your patient. He had known cases in which patients on entering the consulting-room of a surgeon, had an instrument immediately passed, and the result had been something very serious.

Dr. **Wyllie** said they would understand, from what had been already said by Professor Chiene, that of course he agreed with him regarding the nature of most of these cases of catheter fever. The subject attracted his attention a good many years ago, when he was house-physician at Birmingham. They had a large number of medical cases to treat, with debility from old age, and enlargement of the prostate and retention of urine. The fatal consequences of the passage of a catheter in such cases had attracted his attention very strongly at the time; and he remembered speaking to one of the hospital surgeons on the subject, who added another case from his own experience to one or two he (Dr. Wyllie) had had under his observation. A few months previously, this surgeon had been called to the north of England to see a dear friend of his, whose bladder was up to his umbilicus, although he had been treated for incontinence. He added that he had thereupon passed the catheter, but that his friend was now dead. In common with Mr. Chiene, he had given much attention to this subject since 1868, but he would not attempt to detail cases to the meeting. He would merely say a word or two, as regarded the introduction of germs into the bladder, especially about two possibilities. The common method by which this was done was the introduction of them in the oil which anointed the catheter. But there was a possibility, under certain circumstances, of the entrance of air into the bladder during the catheterisation, as in one case of his own, where, after attempting to expel the last drops of urine by pressure over the pubis, unfortunately the hand was lifted up before the catheter was withdrawn, and immediately the negative pressure sucked a quantity of air into the bladder. Not only so, but his friend, Dr. Archibald Dickson, had a case, in which an old man had been overcome by the shock of the City of Glasgow Bank failure, and was bed-ridden in consequence, and presently required the use of the catheter. Dr. Dickson, who was well aware of the danger of introducing germs, took the greatest care in that respect; but on one occasion, when he was pressing the abdominal walls to expel the last drops, the patient suddenly coughed, and the rectus abdominis was put upon the stretch and lifted his hand, and immediately air was sucked into the bladder. In two or three days putrefaction set in in the urine, and the patient ultimately died of his urinary symptoms. In this way septic matter might be introduced even where the surgeon had been as careful as he possibly could be as regarded antiseptic precautions generally.

Mr. JOSEPH BELL thought that one point on which Sir Andrew Clark had laid stress, had not been quite taken up by the speakers. He thought every one in the Edinburgh School, since the valuable paper of Dr. Wylie, and that valuable paper of Mr. Chiene upon this subject in 1869, had tried to keep his catheters clean, not only washing and boiling them carefully, but also by using aseptic lubricants, to prevent the introduction of any *materies morbi* by the catheter. He quite agreed with Mr. Chiene, too, that a good many of the cases referred to before by other authors, and possibly also by Sir Andrew Clark himself, were possibly cases of septicæmia from this cause. But beyond this, and excluding all the causes of supposed kidney disease, there were some cases that had peculiar symptoms after the introduction of a catheter, which they could not explain very well by any of these things mentioned. Those were the cases which had often struck him as being unaccounted for, and this paper had, to him at least, helped to crystallise the many things that had been floating about for many years in the minds of men into a component whole. Because, ever since Mr. Banks's paper he had been cautious in introducing catheters into unknown urethras; and he had even gone the length of having a regular drill for all cases in which it was to be used. In cases in the wards, the patients were given anti-pyretic doses of quinine early in the morning, and were made to go to bed again after the catheter had been passed. In other cases, which they often had in the waiting-room, and never saw again, if he saw swollen eyelids, or other reason for it, he postponed the examination of the case until a bed was got. Since these precautions had been taken he had had very few bad results indeed from catheter cases. Coming to a point to which Sir Andrew Clark had alluded—viz., that there was a personal equation in these cases, he said they must treat each patient separately, and find out what the personal equation of each patient was. Some persons would stand any amount of catheterisation without any bad effects, while others would have very rapid effects, ending in pyrexia and even in death, as in that well-known case recorded by Mr. Banks, where the patient died in a very few hours, and which frightened all the surgeons at the time. They had to find out why one man would suffer and another not. Every surgeon knew of persons with stricture, on whom the catheter was regularly used, who probably got drunk, and never suffered anything from it. When they knew that a person was not liable to suffer from catheter fever, they could use the instrument without fear. But till they knew that, they could not take liberties. Prepare him, and treat him as if he was going to undergo a serious operation. That, he thought, was one of the most valuable lessons they had to learn from this beautiful address.

Dr. **Byrom Bramwell** said there were one or two things he should like to bring before the notice of the Society, and they mainly, of course, referred to the pathological conditions which were found after death, and to the causes which they might presume had been at the root of this so-called catheter fever. He, in common with all young physicians, had not had much opportunity of meeting with these cases. But he had at one time charge of a large workhouse hospital, where many cases of enlarged prostate came under his notice, and he remembered more than one case where death resulted after the catheter had been passed. In more than one case, on post-mortem examination, he had found a condition very similar to that Sir Andrew Clark described as his first case; where there was a sloughing, at all events an extremely diseased condition of the bladder mucous membrane, without, so far as he remembered, any marked alteration of the structure of the kidney. He had not come to the conclusion that the uræmic theory must be so decidedly disposed of as most of the speakers seemed ready to admit. It seemed to him that they could not avoid coming to the conclusion that there was a uræmic element in many of these cases. In many cases, before the catheter had been introduced, the kidney was, he believed, in an unhealthy condition. The observations of Mr. Berkeley Hill, Mr. Marcus Beck, and others at University College Hospital, went conclusively to show that in most of these cases well-marked structural changes were present in the kidneys.

Sir **Andrew Clark**—A third of the cases exhibited no trace of kidney disease at all, and in the cases examined at the hospital also about a third were free; and in those old-standing cases there were no obvious structural changes. The figures are, if I remember aright, 26 out of 66 in Mr. Marcus Beck's cases.

Dr. **Bramwell** said he would take it that, in one-third of the cases, there was no mention made in the hospital books of this condition, but one knew that, in a series of cases, some conditions were occasionally omitted. He thought the fact went conclusively to show that in a considerable proportion of these cases—he did not say all—of prostatic enlargement, with dilated bladder, and possibly some dilatation of the ureters, there must be some structural alteration of the kidney before the instrument was passed, although in the earlier stages that might not perhaps be present. Then, he said, with Professor Grainger Stewart and others—and as Sir Andrew Clark himself indicated—that the sudden withdrawal of a large quantity of urine sometines produced a distinct alteration in the structure of the kidney. He remembered distinctly that in a case of supposed ovarian tumour, which was found to be a dilated bladder, there was found to be acute hæmaturia after withdrawal of the urine. That was a condition, he supposed, well known to surgeons; and there was a presumption that in many of these cases there was a change produced of this kind. Sir Henry Thompson, in his remarks on Sir Andrew Clark's paper in London, stated that the question to a considerable extent depended upon the amount of water left—that the larger the residual amount left, the greater was the danger. Then Mr. Harrison of Liverpool's very suggestive idea and practice of introducing into the bladder a sufficient quantity of aseptic solution, to fill it up, gave some countenance to this theory. He said that he had since then not met with any bad results. Whether that was accidental or not, of course, could not be shown. But, at all events, possibly one element in the success of this practice was the fact that there was not this congestion. For these reasons, it seemed to him impossible to say that there was not in many of these cases some structural alteration in the kidney. And then they knew that in many cases acute septicæmic or inflammatory changes in the kidney were found. In others, they found that the urine was copious, too pale, of low specific gravity; and, although they might not indicate a structural change at all, but might be purely vaso-motor as well as cirrhotic, they were conditions which showed that the kidney was incompetent. The fact to which Mr. Chiene had drawn attention, that in all of these cases organisms were present, appeared to him to be a point of great importance. And another point was the statement of Sir Andrew Clark, that the amount of urea was diminished.

Sir **Andrew Clark**—Sometimes.

Dr. **Bramwell** said he had thought Sir Andrew said always. But even if only sometimes, it conclusively showed that there must be some condition to account for the fact. One of the important facts of fever was, that urea was increased in amount; and, if it was diminished, he took it that there must be some alteration in the local condition or in the kidney to account for the diminution. And that seemed to him to be another point to show that they could not altogether exclude, in the production of these cases of catheter fever, the fact that there were distinct structural alterations and functional alterations in the kidney, which produced to some extent a uræmic condition which accounts for the condition. Then the septicæmic theory also deserved considerable attention; and the conclusion he had himself come to was, that death might be due to shock, in others to uræmia, in others to septicæmia; but, in many of those cases to which Sir Andrew Clark particularly alluded, it was due to a combined condition of uræmia and septicæmia.

Sir **Andrew Clark**—I distinctly stated that there is nothing I have ever seen distinctly uræmic in these cases; and it would render still more complete than this debate already is if Dr. Bramwell would kindly state the conclusions on which he says that this death is due to uræmia. The evidence adduced before us so far is, that this fever which precedes death has nothing of the characters of ordinary uræmia. And, since his statement is of so much importance, it will be of service if he will state exactly the facts from which he infers this.

Dr. **Bramwell** observed that he had said a combined condition of septicæmia and uræmia. He said that in some cases death was probably due to uræmia, but that, in the cases to which Sir Andrew Clark particularly referred, he believed that the unhealthy condition of the kidneys was one of the elements which accounted for the death, and then another element was the septic absorption; and, where they had a diseased or weak kidney, he believed that a slight amount of septic absorption in that person would be much more serious, of course, than it would be in a person whose kidneys were perfectly healthy. He did not in the least imply that the symptoms were identical with those of ordinary uræmia. But, Sir Andrew Clark himself had said that the symptoms were partly those of septicæmia and partly those of uræmia, but not characteristic of either.

Dr. **Duncan**, who closed the discussion on the part of the Society, said that the two questions which Sir Andrew Clark had introduced to the meeting were —(1) Why does a patient die after the introduction of a catheter? and (2) What can we do to prevent it? These seemed to him the chief points for consideration. In regard to the first question, he should be inclined very strongly to bring all the cases into two categories, one of them neurotic, and the other inflammatory. That there was a neurotic element which entered into the consideration of this class of cases, there could be no doubt. The extremely important nervous connection of the urinary organs, which was shown even in the well-known slight shiver which often accompanied the last drops of urine, was illustrated in slight cases by instances of evanescent rigors, beginning almost immediately after the passage of the catheter, and in severe cases by death occurring, as was recorded by his old friend Dr. Mitchell Banks, within six hours after the passage of the catheter, a period so short that it was impossible that any other cause than a neurotic one could be in operation. That this neurotic cause might act in various ways was certain. An interesting case, for instance, which occurred to himself, was one in which, after the passage of the catheter, the patient had on several occasions suffered from that rigor, which came on, and then passed away with perspiration in the course of a few hours. He had at length died suddenly in high pyrexia—he thought 104° F.; and they found a large apoplexy in the brain. Such things might occur occasionally in consequence of this neurotic element. All the other cases he should be strongly inclined to class under the head of inflammatory. He doubted—he was not prepared to deny, but he doubted the cause from the removal of undue pressure; he had so frequently seen cases in which the excess of urine had been removed suddenly from long-continued over-distension of the bladder without the smallest evil result from it. One case especially he called to mind, which illustrated this point. It was that of a clergyman from the north, who was sent to him by the late Dr. Warburton Begbie, and who had suffered many things at the hands of many physicians for ten years, having been treated for polyuria and diabetes insipidus—the leading diagnosis. But Dr. Begbie guessed something else as soon as he had mentioned dribbling of urine. The patient's bladder was distended up to his umbilicus. He (Dr. Duncan) continued for about three weeks, without the smallest injury, to draw off the water, and endeavoured to teach him the use of the catheter, never, however, allowing him to do it himself. The patient went home with the catheter, and he (Dr. Duncan) heard that two or three days afterwards his urine first became turbid, and then fever developed, and he died in a few weeks. That case would go far to prove that undue pressure was not one of the causes which was likely to occur, but that inflammatory affection was. The causes of the inflammation were, he believed, in most of these cases septicæmic. In this respect he agreed with Mr. Chiene and Dr. Wyllie. That there were inflammatory affections independent of septicæmia, and which might even kill, he had no doubt; such as prostatitis in an old man, with perhaps cystitis, perhaps pyelitis, and then uræmia, although this last was rare. There was one case which, possibly, Dr. Watson might remember, at all events, it impressed itself upon his mind. It occured about twenty-five years ago, when he was house-surgeon in the infirmary, and was a case of retention of urine with an enlarged prostate, and various surgeons had attempted to pass instruments without effect; and the man was bleeding copiously when he came in. He sent for the assistant in Mr. Syme's absence, and Dr. Watson succeeded in passing the catheter, with his finger in the rectum, and pushing on through the prostate. The man died in a few days with the prostate bathed in pus and eleven false passages. He had no doubt that patient died of inflammatory fever. But these cases were comparatively rare, he believed, compared with the septic cases, such as that he had related of the over-distended bladder, in which septic influences were allowed to be introduced. So far as he was concerned himself, he should attach more importance to the impurity of the catheter and to the entrance of air through the catheter than to the other two causes to which Mr. Chiene had referred. The introduction of air he believed to be really important, and especially so in those bladders which were inflamed. In the old enlarged prostate, with thickened bladder, which certainly never completely contracted, to which might be added what Dr. Wyllie had called the negative pressure of the abdominal wall, there was a considerable tendency to regurgitation of air. But he thought there was another class of septic cases which they must take into account, and that was what Sir Andrew Clark had referred to in a word as those which came from within. Local inflammation did a good deal to determine the locality in which wandering germs in the body might breed. It was exceedingly likely that these and other causes of septic inflammation might occur, and then might lead to death in various ways, by inflammatory fever, by passing up to the kidneys. They might lead, however, in other ways to death by septicæmia and pyæmia; and, then, possibly there were other forms of toxhæmia of a rheumatoid character, as occurred in gonorrhea. There may be many forms of septic infection—all, however, included in the inflammatory category. It was plain that, if these remarks were correct, the two points of treatment they had to attend to locally, independently of the general ones which had been so well referred to, were, the most absolute gentleness in the use of instruments, so as to avoid the neurotic and simple inflammatory causes, and otherwise to take the greatest possible care to prevent the entrance of organisms by or through the catheter.

Sir **Andrew Clark** said he had little to say in reply, and much more than he could conveniently say in acknowledgement. First, as respected reply, the only points offered him occurred in the very remarkable and very able address of Dr. Watson, and in the address, also able and important, of Dr. Bramwell. The only point in Dr. Watson's address he wished to notice was Dr. Watson's quarrel with the name—catheter fever. He (Sir Andrew) gave it up entirely. It was used provisionally and temporarily, and he should indeed himself be very sorry if the name remained in connection with the subject, as somehow or other it threatened to do. The contention of Dr. Bramwell, which he was not sure if he interpreted aright, was to the effect, that in all such cases as to those which he referred, there was previously existing renal disease.

Dr. **Bramwell**—Not in all, but in many.

Sir **Andrew Clark** said that another remark of Dr. Bramwell's was to the effect that in such cases, particularly in enlarged prostate and distended bladder, they could know that the kidneys were diseased by the study of the condition of the urine. That was true, and not disputed. But he must add that such cases did not always occur in middle age. During the time of this discussion, a case occurred in a young person. Coming home from the Clinical Society on the night he had ventured to ask for information upon this subject, one of the distinguished surgeons present said to him that it was curious that he had never seen such a case following the use of the catheter. Within four days of that time this surgeon wrote him a note, saying that the son of one of his late colleagues was very ill, and he wished him to see the young gentleman along with him. He went, and the surgeon told him that the young man, who was twenty years of age, had a slight and recent stricture. Another had refrained from passing the catheter; but, being desirous of giving relief, the surgeon did so, and in twenty-four hours the young man became ill. He (Sir Andrew) conjectured it was one of these cases, the details of all of which he could not publish. In thirteen or fourteen days the young man died. There was here no enlarged prostate or dilated bladder. The only thing found after death was the so-called purulent urethritis and the commencement of a slight catarrhal—or, if they pleased, catarrhal and interstitial nephritis. But the interesting point in this case was the state of the urine during the disease, which he examined every day with assistance. In many of these cases, he answered Dr. Bramwell, the urine assumed the ordinary characters of a febrile urine, diminished in quantity, rising in density, and having deposits, as in this case, lithates of uric acid. In this case the urine contained over 3 per cent., averaged the full quantity at first, and urea and salts were present in due abundance, and some of them, such as urate of soda, in considerable excess. Referring to Dr. Bramwell's point in regard to the presence of urea in these cases, he said he did not mean to suggest that in septicæmic cases, there would not be an increase of urea. As regarded the cases mentioned by Dr. Bramwell, he had not a complete and confident answer to give, the only answer he could give was this: There were many cases of persons passing a low density of urine, in which, when the whole twenty-four hours' urine was examined by Russell and West's process, or Liebig's, which was a very difficult one, there was found to be about the normal amount of urea. But, certainly, in other cases, as Dr. Bramwell had acutely and properly suggested, there was a deficiency, estimating according to the standard of the height and weight of the person; and in these cases—and he had called attention to this over twenty years ago—any surgical operation was liable to be followed by dangerous consequences. And one of the things he had always endeavoured to teach his students at the London Hospital was, never to attempt any surgical operation without first examining as to this. Sir James Paget had stated a similar warning. He (Sir Andrew Clark) had called this renal inadequacy; and he had only been able to determine functional inadequacy in consequence of the state of the urine, and no structural change. In acknowledgment he had to say more than he could say. The first acknowledgment was one of sincere gratitude to the Society for the kindly, he might even say friendly, manner in which they had been pleased to receive his imperfect communication. The next he had to make was to thank the members of that important Society for the great advance which had that night been made in the discussion of this subject. Even to himself, who had thought of it not a little, it had assumed surer proportions and a clearer position in its relations to other kindred affections than he himself knew at the beginning; and he felt assured that that discussion would exert a happy and favourable effect upon the mass of the profession throughout the country, and they would no longer be open to the reproach, that the body of the profession was ignorant of that which the leaders of it had so well known.

The PRESIDENT of the Society, in closing the meeting, expressed the hope, amid hearty applause, that the distinguished Scotsman who had gone to the South would return more frequently than he had hitherto done, and give them the benefit of his experience. In opening the proceedings, the President had pointed out that Sir Andrew Clark had a perfect right to come to Edinburgh at any time and read a paper there, because he was one of the corresponding members of a pretty old date. F. A. MACIVER.

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# *REPORT ON SURGERY.*

1. **Müller, W.**—UEBER DEN BEFUND VON TUBERKELBACILLEN BEI FUNGÖSEN KNOCHEN UND GELENK-AFFEKTIONEN. (On the presence of the Tubercle Bacillus in Strumous Affections of Joints and Bone.) *Centralblatt für Chirurgie*, 19th Jan. 1884.
2. **Ogston, Professor A.**—ON FLAT-FOOT AND ITS CURE BY OPERATION. *Lancet*, 26th Jan. 1884.
3. **White, W. H., and Edmunds, W.**—AMPUTATION CHANGES IN NERVES. *Trans. Path. Soc. Lond.*, 1883, p. 16.

1. **Müller on Tubercle Bacilli.**—The cases already on record of the presence of the tubercle bacillus in some surgical affections, lead one to suppose that this organism may play a causative part in their production. With a view to increasing our knowledge of the diagnostic value of its presence, Dr. Müller has carried out a very patient and painstaking research on the subject.

Schuchardt and Krause of Halle, about a year after Koch's discovery was published, were able to demonstrate (see *Fortschritte der Medicin*, Bd. i. s. 277) that the bacillus was present in a large majority of cases of this kind; and upheld the view that these cases were of essentially the same nature as tubercular processes in the lung or the kidney. Following up these results, Dr. Müller made use of all the cases of this nature at the Surgical Clinique of Göttingen University during a period of several months. Throughout his investigations he made use of Ehrlich's methods of staining, both with fuchsin and with gentian violet; and his experience goes to show that a preparation of tissues, by first placing them in Müller's fluid, and then in absolute alcohol, is specially adapted for giving a good demonstration of the bacillus with that method of staining. His aim has been to examine the diseased bone at as many different points as possible, and in the case of joints to obtain sections through the whole breadth of the diseased area. In this way he examined thirty-five cases, and prepared on an average twenty microscopic sections from each. In the great majority of these cases, he could with the greatest trouble only find a very small number of the organisms; in a series of eight sections he would find two or three bacilli, sometimes only one. In many cases none were present, of which he says, "I cannot conceal that in a number of typically tubercular joint affections, notwithstanding the most earnest search, I have failed to find even a single bacillus. It is possible that with even more exact investigation, in one or other case, the result might have been different, but in the meantime it appears to me questionable whether a negative result is at all to be wondered at. If in ten or more preparations, where the typical histological appearance of tubercle is characteristically present, one can only with great trouble find a single bacillus; one may, I think, take it for granted that tubercles can exist without the presence of bacilli. We know, as yet, nothing of the duration of tubercles, and very little as to how long a bacillus may exist. This, along with the fact that a great many cases of an undoubtedly tubercular nature heal spontaneously, and that in many such cases where operations are subsequently performed for orthopædic reasons, quite typical tubercles are found to be present in the centre of the cicatricial tissue without a single bacillus being present, prepares one for the occurrence of the absolutely negative results which I have in numerous cases experienced. It would be of greater importance to ascertain if, in quite early stages of the joint affections, the organism is present in greater numbers, but this is matter of great difficulty on account of the rarity of an autopsy occurring at this stage."

It is, therefore, he thinks, impossible to concede that any great significance attaches to the presence or absence of the bacillus tuberculosis in strumous affections of bones and joints; and he describes in conclusion an appearance which he has observed in several cases, where structures resembling closely micrococci seem to occupy the place of the bacillus in relation to the tubercles. He is careful, however, not to commit himself to any definite statement on this point, for the appearance he mentions strongly recalls the features of Ehrlich's cells which have been often described, and sometimes even figured as micro-organisms, but which are really of the nature of compound granular corpuscles.

Arthur W. Hare.

**2. Ogston on Flat-foot and its Cure by Operation.**—The central point in this paper is the well-grounded belief that in flat-foot the chief joint concerned is that between the astragalus and scaphoid. Professor Ogston shows that not only does the deformity begin by the giving way of this part of the arch, but that by the subsequent alterations in the surfaces of the bones the changes are rendered permanent, while the later effects on the other parts of the foot may be all traced as consequences from this one. After a careful description of the various stages of the deformity and of their mechanism, Professor Ogston explains the method of operation which he has devised, all the details of which are carried out under the strictest antiseptic precautions. The joint is freely exposed by an incision over its inner side, "an inch and a-quarter long, and parallel to the sole, . . . dividing all the structures down to the bones. If this incision commence about an inch from the tibia, its centre will be over the articulation." By a transverse cut through the capsular ligament, the joint is more freely exposed. The articular surfaces of the astragalus and scaphoid are then shaved with a chisel, and the parts restored to their normal position, although the bony surfaces are now usually separated from one another by about a quarter of an inch. In order to keep the parts *in situ*, the bones are next drilled, and stout ivory pegs driven through. To prevent hæmorrhage, the parts are compressed by a well-applied Lister's dressing enclosing the whole foot. The wound heals rapidly, but the patients are kept in bed for two or three months before being allowed to rise. A week or two after this, they are able to walk freely.

This operation has been performed seventeen times in ten patients, and, as Professor Ogston says, "in all, . . . to the best of my belief, great benefit resulted from the operation, and in most of them bony anchylosis and a painless arch were obtained." Several of these cases are related. Their subsequent history has shown that the good results are apparently permanent.

**3. White and Edmunds on Amputation Changes in Nerves.**—These gentlemen have carefully examined the condition of nerves after amputation, and give us the result of their investigations, illustrated by several drawings. Neuromata occurring after amputation were found to consist of coiled nerve-fibres, held together by a large amount of fibrous tissue. In proportion to the time elapsed since the operation, were these nerve-fibres fattily degenerated, and the fibrous tissue increased. "In the specimen taken from a case in which the limb had been amputated six years previously, the degeneration shows itself so extreme that the nerve consists of a granular and fatty mass, whilst in one in which amputation had only been done one year previously there is as yet no fatty change, but a large multiplication of nuclei, together with an ingrowth of perineurium."

Similar changes were found to exist in the trunks of nerves going to the amputated part, the alterations being less visible in those parts of the nerve farther removed from the seat of amputation. From these observations it is concluded that a sclerosis begins at the cut end of the nerve, and gradually spreads up the trunk, even this sclerosed tissue becoming fatty in time; and that those nerve-fibres which have lost their functional activity on account of the amputation, gradually become fatty, and are absorbed.

In a case where there had been division of a median nerve some time previously, without its being united again, the distal portion was examined, and was found to end in a point, with no coiled tumour, the nerve-fibres being completely replaced by connective tissue, corresponding to the entire abeyance of all their functions.

CHARLES W. CATHCART.

Edinburgh Clinical Journal.—March 8, 1884.

# REPORT ON OPHTHALMOLOGY.

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### RECENT PAPERS.

1. **Hasner.**—Paralysie Periodique du Moteur Oculaire Commun. (Periodic Paralysis of the Third Nerve.) *Arch. Gén. de Méd.*, Dec. 1883, p. 732.
2. **Terrier, F.**—Remarques Cliniques sur un Cas d'Ophthalmie dans le Cours d'un Rheumatisme Articulaire Aigu. (Ophthalmia during Acute Rheumatism.) *Arch. d'Ophthalmol.*, Jan. and Feb. 1884, p. 65.
3. **De Lapersonne et Vassaux.**—Des Altérations Pigmentaires de la Rétine Corsécutives à un Traumatisme de l'Œil (Alterations in Retinal Pigment following Injury to the Eye.) *Arch. d'Ophthalmol.*, Jan. and Feb. 1884, p. 86.

1. **Hasner on Periodic Paralysis of the Third Nerve.**—The patient, a healthy girl of seventeen, has been affected since the commencement of menstruation, four years ago, with complete paralysis of the third nerve, headache, and vomiting, at each menstrual period. On the first day of the period there is, on the left side, ptosis, misdirection of the eye downwards and outwards, loss of accommodation, and dilatation of the pupil. These symptoms gradually pass off in the order in which they have been named. There is no loss of visual acuity. Except this singular group of symptoms, the patient presents no other abnormality whatever. The author suggests that it may be due to a vasomotor disturbance affecting the root of the third nerve; and that a similar affection of the vagus might cause the vomiting. He thinks it may lead to the establishment of permanent impairment of function.

2. **Terrier on Ophthalmia in Acute Rheumatism.**—In regard to eye-affections, as elsewhere, the word rheumatic is used in very different senses by different writers; some including under it many affections due to exposure to cold, without distinct evidence of a tendency to other rheumatic manifestations. It is generally agreed that some forms of inflammation are often dependent on a rheumatic constitution, particularly episcleritis and iritis.

Eye-changes in acute rheumatism, however, the so-called "gonorrhœal rheumatism" excepted, have not often been observed. In most of the cases described the inflammation has been either conjunctivitis or iritis, and generally their development has alternated with that of articular symptoms.

The case described in this paper is that of a lady of a rheumatic family, who had an attack of acute articular rheumatism lasting more than two months. During her illness, which presented in other respects the usual features of the disease, both eyes were affected,—first with catarrhal conjunctivitis; then one after the other with superficial keratitis; lastly, with severe iritis, which in one of them relapsed. The attacks of inflammation did not alternate with, but generally accompanied exacerbations of the articular symptoms; and as the disease passed off the eyes returned to their normal condition, in which they have since (for more than two years) remained.

From his own observations, and those of the other writers he quotes, the author concludes (1) that ocular complications do occur, though rarely, in acute rheumatism; (2) affect either conjunctiva, cornea, or iris and choroid, or all successively; (3) either coinciding or alternating with aggravations of the other symptoms; (4) that though they are sometimes severe, the prognosis of these affections is very favourable; (5) that their treatment is that of the acute rheumatism, with the local measures appropriate to the form of inflammation present.

3. **De Lapersonne and Vassaux on Alterations of Retinal Pigment following Injury.**—Berlin has shown that section of the optic nerve in frogs and rabbits, when it does not result in atrophy of the globe, is followed after some time by a peculiar change in the disposition of the retinal pigment, without inflammatory change in either retina or choroid, leading to appearances very similar to those found in retinitis pigmentosa. Pagenstecker has described a case where injury of the optic nerve, without directly affecting the globe, led secondarily to like changes, accompanied, however, by atrophy of choroid.

The authors give a short history of a patient in whom one globe had been injured by a lead pellet, and was enucleated twenty-five years later on account of pain and inflammation in it, and a threatening of sympathetic ophthalmia in the sound eye; and make a very full report of the microscopic examination of the diseased globe.

The track of the pellet, which had penetrated the globe at two points and lodged in the orbit, was marked by a cicatricial band enclosing several fragments of eyelashes, evidently carried in and left by it. Round its wound of exit the choroid showed signs of inflammation; elsewhere the changes were almost entirely confined to the retina. These changes consist chiefly in an atrophy of all its elements except fibrous tissue, so that its normal layers cannot be traced, and a profound alteration in the disposition of the pigment. This has in some places gathered into masses, but in most has become distributed along the course of the vessels, giving rise, in the case of the more minute, to the stellate appearance so characteristic of retinitis pigmentosa; while everywhere it has manifested a tendency to pass inwards, and here and there has found its way into the vitreous humour. These appearances are most pronounced towards the periphery of the fundus. They correspond most accurately to the changes found in cases of retinitis pigmentosa, a description of which, quoted from Landolt, might almost stand for a restatement of the authors' account of their own case.

They come to the conclusion that these remarkable changes were probably due, not to the presence of the hairs they describe in the vitreous humour, but to a supposed injury of the optic nerve produced by the pellet after traversing the globe. The figures they publish, however, scarcely support their statement that "the direction of the pellet as shown by its track through the eye gives a certain probability to this hypothesis." And a case has been reported by Dr. Argyle Robertson which shows that this hypothesis is not necessary. After an injury, which opened the anterior chamber and dislocated the lens into the posterior chamber, changes in the pigmentation of the retina ensued, like those here described, most marked in the neighbourhood of the dislocated lens. In this case, wound of the nerve could not be supposed; and the distribution of the change showed its connection with the intra-ocular source of irritation.

But in any case the occurrence of changes practically identical in microscopic appearance with those of retinitis pigmentosa and resulting from injury is satisfactorily shown; a most interesting fact, and one that may help to throw light on that very obscure disease.

R. A. Lundie.

# REPORT ON LARYNGOLOGY.

1. **Semon.**—THE THROAT DEPARTMENT OF ST. THOMAS'S HOSPITAL IN 1882. "St. Thomas's Hospital Reports," vol. xii. (New Series).
2. **Stepanow.**—UEBER LARYNGITIS HEMORRHAGICA. (On Hæmorrhagic Laryngitis.) *Monatsschrift für Ohrenheilkunde sowie Kehlkopf, &c.*
3. **Morell Mackenzie.**—HYPERTROPHY OF THE MUCOUS-MEMBRANE OF THE NOSE. *Annales des Maladies de l'Oreille, du Larynx, &c.*, Dec. 1883.

1. **Semon on the Throat Department of St. Thomas's Hospital.**—It would occupy more space than we can afford, to enter into all the points of interest referred to in this very excellent report, and it remains only to select those which seem to us of more than usual importance:—

(1.) *The Curability of Granular Pharyngitis.*—The author's experience is that when this throat affection depends upon the inhalation of irritating particles, the presence of adenoid vegetations, anæmia, plethora, &c., the prognosis is favourable. On the other hand, when granular pharyngitis occurs in women at the climacteric period, the prognosis is by no means favourable. In these cases the troublesome symptoms are temporarily relieved, indeed, by destruction of the granules, which, however, tend rapidly to re-appear.

(2.) *Herpes of the Pharynx.*—Four cases of this rare affection are recorded. In all the hard and soft palate were the principal seats of the eruption, which in the case extended on to the tonsil. In none of these cases was there ever any formation of false membrane.

(3.) *The Indications for Uvalotomy.*—Semon protests against the frequent abuse of this operation, which, although never dangerous to life, is often followed by most distressing angina. While prepared to admit that in some cases (professional singers) it may be desirable to perform ablation of an elongated uvula, which is supposed by many to interfere with the voice, Semon doubts the frequency of this indication. In his own experience, the following conditions alone have seemed to him to suggest the propriety of uvalotomy—viz.:—

(*a*) Elongation to such a degree that the uvula is liable to be sucked into the larynx and cause spasm.

(*b*) The existence of an enlarged uvula, healthy larynx and pharynx, and persistent throat irritation. Semon, however, expressly stipulates that other causes—*e.g.*, granular pharyngitis, &c.—should be first excluded.

(*c*) Interference of an enlarged uvula with a delicate intra-laryngeal operation.

(*d*) Malignant disease.

(4.) *Salicylate of Soda in Acute Tonsillitis.*—From personal experience the author has been unable to convince himself that this drug exercises any effect upon the local condition.

(5.) *A Case of Hæmorrhage after Tonsillotomy.*—In this case the guillotine was used to remove the tonsil. Serious hæmorrhage followed, the source of which was probably a branch of the tonsillar artery. The treatment adopted consisted in the application of cold (ice), sipping astringent solutions, and the use of perchloride of iron. All were of no avail, but ultimately direct digital pressure was successfully resorted to.

(6.) *Isolated Anæmia of the Larynx.—A valuable diagnostic sign in the earliest stages of phthisis.*

Dr. Semon considers anæmia of the laryngeal mucous membrane, when unassociated with pallor of other parts, to be nearly, if not quite, pathognomonic of pulmonary phthisis. This localised anæmia can often only be appreciated at the first instant of examination, as the the vaso-motor nerves are extremely sensitive. Semon, therefore, advises notice to be taken of the colour of the mucous-membrane first.

(7.) *A Case of Sarcoma of the Larynx.*—As this disease is very rare, we think it right to mention that, in the reports before us, a case is recorded at length. It would, however, be impossible shortly to reproduce it without curtailing it so much as to make it useless to the reader, who, if he be desirous of further information, is referred to the original.

(8.) *Iodoform in Laryngeal Phthisis.*—Semon describes two cases in which the insufflation of iodoform produced very beneficial results, ulcers healing under this treatment. "On the whole, I would summarise my own experience," he says, "by saying that regular applications of iodoform in powder to the ulcerations of laryngeal phthisis produce cleansing and, in many cases, diminution in size of the ulcers; often diminution of the surrounding œdematous infiltration, decrease of pain and soreness, and frequently considerable improvement of the dysphagia and odynphagia, which had previously formed some of the most distressing and most serious features of the disease."

The formula recommended is—

℞— Iodoform.
Acid. Boracic, āā gr. i.
Morph. Acetat., gr. $\frac{1}{8}$.

(9.) *Motor Paralyses of the Larynx.*—Dr. Semon has, in his recent able paper in the *Berlin. klin. Wochenschrift* (an abstract of which has already appeared in this Journal) shown how much more common is immobility of one vocal cord in the position of extreme adduction, than in the commonly described cadaveric position in the early stage of recurrent paralysis. In four out of six cases in which unilateral paralysis of the abductor existed the voice was perfectly normal, and in none of these was there any dyspnœa. The extreme importance of laryngoscopic examination in cases in which even the barest possibility of pressure, on the recurrent nerve exists, is thus forcibly illustrated.

(10.) *A Case of Aphonia Spastica.*—Our review has, perhaps, extended beyond proper limits already, but we must just allude to the interesting case of spastic aphonia, which was unfortunately only seen once by Semon. The larynx was normal, but the patient could never articulate more than one syllable at a time, and during phonation the glottis closed so tightly that the cords almost seemed to overlap one another.

2. **Stepanow on Hæmorrhagic Laryngitis.**—Under the name "hæmorrhagic laryngitis," Stepanow describes an interesting group of cases, consisting in all of five examples, one of which was observed by himself, while three are quoted from the writings of Navtrail, Fränkel, and Böcker, the remaining case having been observed by Dr. Schulz, but not published.

The symptoms of this rare disease seem to be very similar to those produced by simple catarrhal laryngitis; but in addition the patient expectorates blood, and that sometimes in considerable quantities. Laryngoscopic examination usually reveals the presence of a film of clotted blood, which is most marked on the vocal cords. It is difficult to account for the phenomenon, as it seems to have been present in cases where the inflammation was mild, as well as in severe laryngitis, so that the hæmorrhage in this affection cannot be said to owe its origin to intensity of inflammatory action. Recovery took place in all the recorded cases, but the duration was longer than is usually the case in simple laryngitis. Stepanow speaks of three stages—viz.: (1) a premonitory catarrhal; (2) a hæmorrhagic; (3) a catarrhal stage preceding a return of the parts to health.

3. **Morell Mackenzie on Hypertrophy of the Mucous-Membrane of the Nose.**—It may be well to mention here that the editors of this Journal (*Annales des Maladies de l'Oreille, du Larynx, &c.*) have added Dr. Morell Mackenzie to their number, and that they moreover accept and publish articles written in English, either in that language or in French.

The paper referred to is a chapter of the second volume of Dr. Mackenzie's work on the diseases of the throat and nose, or perhaps we should say will eventually become a chapter when the long-delayed volume appears in book form. The remarks on treatment strike us as being of great value. In cases which are not very advanced, the use of gum-elastic bougies is recommended; and these should not at first be left in the nose for more than five minutes. After a few days, however, they may be allowed to remain for ten or fifteen minutes, and as the part becomes accustomed to their presence, for half-an-hour at a time. Mild alkaline sprays are also useful adjuvants, while ammonia and acetic ether are found useful in checking attacks of sneezing.

"Should this plan not succeed, more active steps must be taken; but a word of caution is perhaps necessary in connection with this point. For though the introduction of the electric cautery and the wire écraseur permits some relaxation of the rule under which surgeons were taught 'to cut through everything soft, to saw through everything hard, and to tie everything that bleeds,' the spirit of this simple instruction has, I fear, in recent years, sometimes influenced the younger practitioner, and the nasal passages have sometimes been 'cleared' with a zeal and energy worthy of the industrious backwoodsman. In several cases that have come under my care, in which severe measures had previously been urgently advised by others, I have succeeded in affecting a cure by the simple removal of all causes of irritation and the persevering use of gentle dilatation; I would also warn some of my younger confrères that, as the appearance of the interior of the nose varies in healthy persons just as much as its outward configuration, it is unnecessary, where no inconvenience is felt, to restore geometrical symmetry to the turbinated bodies, or to invest the lining membrane of the nose with artistic merit."

Our author then goes on to describe the means which are usually resorted to for destroying redundant tissue, and while describing all in detail gives preference to the galvano-caustic method.

P. M'BRIDE.

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# THE EDINBURGH
# CLINICAL AND PATHOLOGICAL JOURNAL.

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## *ORIGINAL ARTICLE.*

### NOTES OF A CASE OF PUERPERAL SEPTIC ABSORPTION, WITH SOME REMARKS ON TREATMENT.

BY EDWIN BAILY, M.B.,
ASSISTANT TO THE PROFESSOR OF SURGERY, UNIVERSITY OF EDINBURGH.

THE following case is one of interest, especially at the present time, when the value of the corrosive sublimate is being so fully discussed by the profession at home and abroad:—

Dr. Berry Hart saw G. W., a primipara, on the morning of the 12th January, 1884. The second stage was completed naturally about twelve hours afterwards. During the progress of the third stage there was flooding, the placenta was removed from the vagina by the hand, and the uterine surface observed to be ragged at one part. At the patient's special desire, and considering that there had been free hæmorrhage, chloroform was not administered while the hand was passed into the uterus, the missing portion found and removed from the lower uterine segment. The uterine douche was used, and iron and ergot prescribed, fifteen drops of each every four hours. The vaginal douche was ordered to be frequently employed. Twenty-four hours afterwards the patient had a rigor and high temperature, for which ten grains of quinine were given. On the 14th of January she had a severe rigor and frequent slighter shiverings, with a temperature of 104°. Dr. Hart, on examination, found the uterus somewhat fixed at the right side, gave an intra-uterine injection of corrosive sublimate, 1-2000; and, considering the case to be a well-marked form of puerperal septic absorption, asked me to take charge of the patient, giving at the time to the patient's friends a very grave prognosis.

*14th Jan.*—Saw G. W. along with Dr. Hart, at 9 P.M. Her temperature was 103·6°; pulse, 128, very weak and thready.

*15th Jan.*, 9 A.M.—Intra-uterine injection repeated this morning, using two quarts of the tepid solution 1-2000. The discharge is copious and intensely fetid. She was delirious throughout the night. Temperature, 102°; pulse, 116. 5 P.M.—Intra-uterine injection of three quarts. She is delirious, muttering feebly, and picking at the bed-clothes. She lies flat on her back, sunk in the bed, with her knees drawn up. Temperature, 102·6°; pulse, 120.

*16th Jan.*, 9 A.M.—Passed a restless, noisy night. Discharge fetid. Ordered cloths to be dipped in the solution, and to be applied closely over the external genitals. Temperature, 100·6°; pulse, 98. 5 P.M.—She complains of being fatigued, and yawns constantly. Has great pain in her right side, and over the region of the uterus. (The uterus is retroverted and displaced to the right side.) Temperature, 101·4°; pulse, 100.

*17th Jan.*, 9 A.M.—Discharge less fetid. Temperature, 102·8°; pulse, 120. 5 P.M.—Condition unchanged; is becoming weaker. Temperature, 103°; pulse, 120.

*18th Jan.*, 9 A.M.—Slept at short intervals last night. No discharge. Temperature, 99·8°; pulse, 94. 5 P.M.—At 2 P.M. the patient had a severe rigor. Is now delirious. No discharge. Temperature, 104·4°; pulse, 128.

*19th Jan.*, 9 A.M.—Is very weak this morning; the least movement gives her pain. No discharge. Temperature, 102·2°; pulse, 120. 7 P.M.—Professor Simpson and Dr. Hart saw the patient to-day; they suggested the application of ice over the right inguinal region. A little discharge to-night; not fetid. Temperature, 101·2°; pulse, 120.

*20th Jan.*—Patient has had a good night. Discharge slight and odourless. Temperature, 98·8°; pulse, 84. 7 P.M.—Improvement continues. Temperature, 100·6°; pulse, 96.

*21st Jan.*—Temperature, M. 98·8°, E. 99·8°; pulse, M. 88, E. 96.

*22nd Jan.*—Temperature, M. 97·8°, E. 98·4°; pulse, M. 86, E. 88. Discharge is small in quantity, and free from odour. Bi-manually, the uterus is detected to be much diminished in size, and is to the right side.

*23rd Jan.*—Patient is doing well. Temperature normal. Stopped the evening intra-uterine injection to-night.

*24th Jan.*—Injection once a-day.

*27th Jan.*—Injection stopped entirely. She is progressing favourably in every way, but gains strength very slowly.

*29th Jan.*—Discharge has ceased.

*17th Feb.*—Patient now convalescent.

*4th March*—Patient is quite well again. Menstruation set in on the 26th of February, lasted four days, was plentiful, but patient states it was of a nasty black colour.

*Remarks.*—The medicinal treatment consisted in the administration of iron and ergot from the commencement. Digitalis was given when the pulse was above 100. Quinine was given in doses of from 5 to 15 grains as the temperature indicated it, and 12 grains of chloral were generally given at night.

The dietetic treatment of the patient for the first six days consisted of milk, beef tea, chicken broth, and whisky, four ounces a-day until the 18th of January, when it was increased to six ounces for the next three days, after which date it was gradually diminished. The patient was fed with nourishment in some form, and in small quantities, every half-hour of the day and night—when not asleep. The intra-uterine injections—and it is to these I wish to attach especial importance—were given twice a-day from 14th January to 24th January, and were continued once a-day up to the 27th of January, on which date they were stopped altogether. At Dr. Hart's suggestion, Messrs. Duncan & Flockhart of Edinburgh, have made a very strong solution of the corrosive sublimate in water, the solubility being greatly increased by the addition of ammonium chloride in an equal amount to the mercury. A small quantity of this solution need only be carried, as six ounces of it will make forty-eight quarts of the lotion in the proportion of 1-2000. The bottle is secured with a glass stopper, and the stopper is cupped, the cup holding one dram of the solution, and this quantity makes, when added to four tumblersful of water, a lotion equal to 1 part of mercury to 2000 parts of water. For the comfort of the patient the solution should be warmed.

It is necessary that the medical man should always administer the intra-uterine injection himself. To do this the patient should be lying on a firm hair-mattress; she should be brought well up to the edge of the bed, and should be placed in the side position. A large sheet of mackintosh, raised on the inner side, should be placed under the patient, and this should hang well over the bed, the ends being gathered into a pail, which will collect the waste lotion. To the injection tube should be affixed a glass nozzle with a pelvic curve, the nozzle somewhat tapering towards the free extremity, where it is perforated by one large aperture. As the tube is being passed through the vagina, the lotion should flow, in order that it may not carry along with it any fresh source of putrefaction.

The injection may be given either by means of the syphon-action, a reservoir of the lotion being suspended at a certain height from the patient's bed; or an ordinary enema-syringe may be used. The syphon has certain advantages over the syringe; among these are—1st, the flow is constant; 2nd, the force is equal during the whole time of the flow; 3rd, the force of the flow can be readily regulated by increasing or diminishing the height of the reservoir; 4th, the risk of air being driven into the uterus is minimised; 5th, it is more easily managed,—if the reservoir be fixed, no assistance is required. If an enema-syringe is used, the continuous rubber variety is the best, as in this there is no metal valve, the corroding action of the lotion being sufficient to destroy the ordinary metal valve. The corrosive sublimate has many advantages over carbolic acid. It is more reliable, and more convenient for use, less irritating to the patient, and it does not affect the hands of the medical man. Its disadvantage is the risk of absorption, but it has been found that while the solution of 1-2000 is used, this risk is not at all great. In the case of G. W., six quarts of the lotion were injected daily for a period of ten days, that is equivalent to 57 grains of corrosive sublimate being used daily. She was carefully watched to see if any toxic symptoms manifested themselves, but there was not at any time the slightest evidence of mercurialism.

The discharge diminished in quantity as the injection was increased, and disappeared entirely after the fourth day until the night of the sixth day, and subsequently it was very slight in quantity and odourless. Could this diminished amount of discharge be accounted for by the astringent action of the lotion ?

The cases at present recorded are too few to enable us to draw much conclusive evidence from them. This patient was in an extreme condition of danger when the treatment was commenced, apparently succumbing to a disease which, in a large majority of cases, has hitherto resulted fatally. During the first few days of the treatment her condition, which had been previously getting rapidly worse, now became almost stationary, and finally she completely rallied, and is now well, two months not having yet elapsed from the date of her confinement.

[*Remarks by* Dr. HART.—The condition of the patient when Dr. Baily took charge of the local intra-uterine treatment was highly unfavourable. She seemed under the influence of a strong dose of septic poison, which had spread from the uterine surface into the right parametric tissue and along the broad ligament of the same side. I am confident that she would have died in twenty-four hours had the treatment been merely medical. The prompt disinfection of the absorbing surface cut off, however, the further passage of the poison, and, in my opinion, undoubtedly saved the patient's life.

It is interesting to note that the daily thorough use of such a large amount of corrosive sublimate caused no toxic symptom. In a recent number of the *Centralblatt für Gynäkologie* (see Obstetric Report of this Number, p. 517), Prof. Stadfeldt has recorded a case similar to this in very many respects, where alarming symptoms set in during the first injection of it, the patient ultimately dying. The cause of death, however, cannot be clearly traced to the use of corrosive sublimate. I have only to add that my thanks are specially due to Dr. Baily for his skilful treatment of the case. My choice lay between attending to the case myself, and giving up all other obstetric engagements, or putting it safely in the hands of one free from obstetric practice. The latter course seemed to me better in all respects, and one to be followed in similar instances.]

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# MEETING OF SOCIETIES.

## EDINBURGH OBSTETRICAL SOCIETY.

THIS Society met on the evening of Wednesday last, and, on the motion of Professor Simpson, Dr. WILSON took the chair.

The only preparation shown was one by Professor Simpson, illustrating the paper with which he followed. It was a tumour and stump of the uterus, in a case of Porro's operation. The tumour was a solid mass, and showed the usual cotton-ball appearance of fibroid tumours on section.

### Case of Porro's Operation.

Professor **Simpson**, in a paper on a recent case of this operation, said that when he made his visit to the Maternity Hospital on 30th January, Dr. Smith, one of the house-surgeons, reported a puzzling case of delayed labour. On examination, he had noticed something like the head of a child nearly filling the pelvis, and on passing his hand further, he quite fully made out the unbroken bag of membranes containing what might be the head of a twin. He (Professor Simpson) went to the place, and, in a wretched apartment, saw a poor woman, of whose age no satisfactory account could be got. She was certainly over forty, and her husband thought she was about fifty. She had been three years married, and had one child about one-and-a-half or two years previously, when resident in Ireland. At that time she had been more than three days in labour, which had ended, under the natural efforts, in the birth of a still-born child, a medical man in attendance judging it to have been about nine days dead. During her last pregnancy she had suffered considerably from incontinence of urine for eight months, had taken no notice of abdominal swelling, and could tell nothing in regard to the periods of conception or quickening. Labour pains had set in for some time, and a student had been in attendance since the evening of the 29th. Inspection revealed an abdominal swelling extending to the ensiform cartilage, closely invested by the tensely-stretched abdominal walls. The swelling was nearly in the middle line, deviating but slightly to the right. Just below the umbilicus was a second mass, extending under the symphysis pubis, in the hypogastric and left inguinal regions, which reminded one of the distended bladder. No ridge corresponding to Bandl's furrow was traceable. This lower projection was felt to be solid and continuous with the uterine tumour. Auscultation revealed the fœtal heart-sounds quite distinctly in the right dorso-anterior position. On the right pudendum there was a hard chancre. This lower mass, he came to the conclusion, was a fibroid tumour growing from the lower segment of the uterus, and extending between the layers of the left broad ligament in the side of the pelvis. The partially-expanded os uteri could be reached, the membranes were still unbroken, and the head of the child was on bi-manual pressure freely movable. He came to the conclusion that the woman's only chance was from an early gastrotomy, made arrangements for her early removal to the Maternity Hospital, and summoned his colleagues to meet about one o'clock. About half-past twelve, the patient and her husband absolutely refused to allow her removal, and his colleagues were summoned to the house. She said she had been delivered before without any operation, and would wait the will of Providence. A priest kindly persuaded her that her duty was to submit, and she was partly dressed when he left. But, after his departure, she relapsed into her fatalism. Her chances of successful interference had much lessened, when she was at last brought to the hospital at 3.30. The morphia under which she had been put had lessened the uterine effort, and her sufferings were not so great, but the fœtal heart had ceased to beat. Drs. Angus Macdonald, Halliday Croom, and Hart still agreed with him that her only chance was gastrotomy. Dr. Arnot, Bombay, and some students were also present when the operation was undertaken. The abdominal walls were carefully douched with a 1 in 2000 solution of corrosive sublimate, and the bladder emptied of some very albuminous urine. An incision was made from two inches above the umbilicus to within two inches of the symphysis pubis, the incision being sufficiently long to allow of the protrusion of the uterus. This done, a loop of strong cord was carried as far down towards the cervix as the tumour would admit of, and then drawn tightly below the head of the child. The edges of the abdominal incision were kept closely adapted to the uterine incision, through which he easily reached the cavity, and extracted the infant by seizing the exposed breech. The uterus gave out but a few drops of blood, and showed no tendency to contract. Lawson Tait's clamp was now applied, and the uterine mass cut off above. There had been no escape of any amount into the peritoneal cavity, and after the cavity was sponged out the wound was stitched up carefully. Superficial carbolic catgut sutures were used. The bulk of the tumour rendered somewhat difficult the adaptation of the wound towards the edge of the stump, and the difficulty was the greater that the daylight had now gone, and the proceedings had to be conducted by gas and candle light. The hospital schedule stated that in the evening the temperature was 98·4° and the pulse 80; that the pulse was firm and regular, and had gone down from 92 immediately after the operation to 80. At 7 P.M. she complained of pain; she was sick and retching; at 9 P.M. had ice to suck, and had urine drawn off at 10. There was no oozing from the stump or wound. Next morning the temperature was 98·2°, and the pulse 98·4; and, in the evening, 100° and 92. The morning report stated that she slept pretty fairly, that the urine was drawn off at intervals of four hours, and that she had a fresh dressing at 10. In the evening she had slight inconvenience, and in the afternoon the temperature was 100·2°. In the evening, also, there was tympanitic distension of the abdomen, marked and full, and she lay with the legs drawn up. On the third day, the morning temperature was 99·8°, and in the evening, 97·6°, the pulse rising to 114 in the morning, and 112 in the evening. The report stated that a sleeping mixture had been repeated at 2 A.M., and that she slept for three hours. She was drowsy, breathed in a half-sighing fashion, the pulse was less full and more rapid; there was much increased tympanitis, and she still kept her kness drawn up. In the evening she vomited at intervals, and ice-bags were constantly applied. The tympanitic distension was still increasing, and the pulse was now feebler. On the fourth day, although two doses of bromide and chloral were given, she passed a very restless night, crying out frequently, perhaps due to vomiting after each dose. The temperature was 98·4° and 97°, and the pulse 104 and 112. The evening report stated that she spent a quieter day, vomited frequently, but complained of no pain. She was given chlorate of potass and tincture of digitalis, and about ℥i. of brandy every four hours. There was albumen in the urine. On the fifth day the temperature in the morning was 97°, and the pulse 116. She had spent a very restless night, but was quite sensible in the morning, and the abdominal distension was *in statu quo.* The evening temperature was 101°, pulse 128. On the sixth day, it was stated that she was restless and delirious during the night, and was with difficulty kept in bed; the bowels moved freely. In the evening the pulse had risen to 128 from 120 in the morning. She had hiccupped frequently during the day, but at night was still sensible. On the seventh day, the morning temperature was 98°, and the pulse 124. She had slept very little during the night; cried out and fought with the nurses. She gradually grew weaker and weaker during the day, and died at 10 P.M., the temperature in the evening having been 98°, and the pulse 104. He (Professor Simpson) need not say it was a regret to him to have to report another operation of this kind with an unfavourable result. At the same time, he was still of opinion that his colleagues and he were right in giving the woman the best chance of recovery; and that if the operation had been carried out while the child was still alive, and before the discharges had become putrid, both mother and child could have been rescued. He did not think that any advantage could have been got by the modification of the operation. The results in the hands of the British operators had been as unsatisfactory as those of the old operation, Dr. Godson having been successful in 1 only out of the 5 or 6 cases. Still, the mortality was lessening. In the cases previously recorded by him, it was 58·3 per cent., while in the 138 cases recently tabulated by Dr. Godson, it was 55·8.

The **CHAIRMAN** said they could all sympathise with Professor Simpson in his regret at the unfortunate result of the case. But, considering the circumstances under which the operation was undertaken, he believed that the chances of success were very very slight; while, at the same time, it offered the patient the best chance of recovery.

Dr. **ARNOT** then gave an account of three cases of Cæsarean Section he had performed in India, according to the classical method. All the mothers died, but living children were obtained.

Dr. **HALLIDAY CROOM** said it was very difficult for any one but Professor Simpson, who alone of those present had performed such operations, to give any very definite opinion in regard to the points as to which Dr. Arnot had asked for information. With the exception of the operations that Dr. Simpson had recently done, there had been none that he was aware of here for the past fifteen years at least. Referring to the last case of Professor Simpson, he should like to ask the Professor whether or not it was desirable, at the time he removed the uterus, to apply the whipcord tightly round the cervix before extracting the child, and whether perhaps the unfortunate result to the child was not due to having in that way interfered with the circulation before removal. Of course, as he knew, the success of the operation was greatly interfered with by the previous exhaustion, and probably also the life of the child had already been lost. From the cases which Dr. Arnot had recorded, it would seem that, at first sight, Cæsarean section had pretty much as good a show to make as Porro. At the same time, there could be no question that the success of Porro, compared with the ordinary Cæsarean section, must, in favourable circumstances, be very great, from the fact that, in the first instance, they had to do with a stump altogether outside the abdominal cavity. That alone would be sufficient to warrant their attempting Porro's rather than the ordinary Cæsarean section. Again, it seemed desirable in these cases to unsex the woman at once, in order to prevent her getting into difficulties afterwards. Dr. Arnot had not mentioned that, on cutting into the placenta, he had the very great hæmorrhage which he would have expected in such a case.

Dr. **HART** said he should like to ask Dr. Simpson whether he did not think that the shortness of the pedicle and stump had something to do with the fatal result. Of course, the case was quite a unique one, but it had occurred to him after the operation that, perhaps, it might have been better if the uterus had been simply cut into, the child extracted, and then the *ecraseur* or clamp put on higher up, to admit of the pedicle being brought more easily out of the cavity. Of course, the case was a very unfavourable one, and he did not think it should be counted among the bad cases for Porro's operation. He had now seen three Porro and one ordinary operation, and, curiously enough, he had not seen a successful case yet. He wished to know from Dr. Arnot if, in using the silver wire sutures, he cut them short and left them in the peritoneal cavity, or left them long, and brought them out of the wound, and what did he expect would happen.

Dr. **Arnot** said he had used the silver wire because they had not catgut sutures at the time. He thought the sutures might just drop into the uterus and pass away.

Dr. **Underhill** said that silver wire had been used before frequently, and had been found, on post-mortem, simply concealed among masses of lymph and so forth, without harm of any kind.

Dr. **Peter Young** also said that some years ago he made experiments upon rats, and he almost invariably found that the wire sutures became covered over with lymph, and remained quiescent without causing any suppuration. In regard to Dr. Simpson's case, it was evident that the result to the mother could not have been so favourable as in a case of Osteomalacia, because the tumour and stump left would not be in such a favourable condition for healing as in a case where the uterus was perfectly healthy. He did not see what better method could have been used in this particular case than that which had been adopted. It was quite evident the Cæsarean section or Porro's operation was absolutely necessary; and he thought that Porro's operation, upon the whole gave a better chance for life than the ordinary one.

Dr. **Barbour** pointed out that another difficulty in Professor Simpson's case lay in the impossibility of drainage after the operation, from the fact that there was this large tumour, which distinctly pushed up the lower part of the abdominal wall, and came quite close to the incision.

Professor **Simpson**, in reply, said he had remarked more than once that if he had had more consideration for the operation and less for the woman, he should not have performed Porro's operation in this particular case. He meant, that if he had wanted to produce statistics that would be very favourable for Porro, he should have contented himself here with the old operation, because, by the time the woman fairly came under the knife, her chances were nearly gone and the child's chance was gone. Then, in carrying out the operation, the question was as to the Müller modification of it—viz., that of making a large abdominal incision to allow of the protrusion through it of the unwounded uterus, and operating on it outside the peritoneal cavity. In reading his first communication on this subject to the Society, he had been careful to point out that the Müller modification brought special risks to the mother and to the child—to the mother, the added risks of the larger wound and the possible protrusion of the intestinal coils, and to the child the risk of interference with the circulation, leading to temporary asphyxia. But they would note that precisely the conditions were present in this case which he had formerly stated would warrant, and justify even, having recourse to this modification. In regard to Dr. Hart's point, he had said at the time it would be better if they could have had a longer pedicle. But to get the benefit of Müller's plan, they were obliged to constrict the uterus with the cord at a point below the head of the child, and very close to the tumour, so as to prevent the escape of blood from the uterine walls. And then, as Dr. Barbour had rightly said, there was the further difficulty of drainage. While the case terminated unfavourably, they had been quite prepared for that, because there was this short pedicle dragging the tumour quite close to the abdominal walls, and the risk of inflammation being set up in the tumour itself or around it—there being no possibility of the removal of the tumour itself, growing, as it did, from the lower segment of the uterus, spreading in the layers of the broad ligament, and being packed into the pelvis. He still thought the woman survived a longer time after this operation than she would have done after the ordinary one. Dr. Arnot's cases were, he thought, extremely interesting. Here they never saw such cases. Osteomalacia was pretty nearly an unknown disease among us now. He had seen one or two cases of it, but never one in a pregnant woman during twenty years. He thought Dr. Arnot would find it advisable in these cases to have recourse, just as in this case, to the extirpation of the uterus and ovaries after the removal of the child. Some of the Italian operators found that, after such extirpation, there was even cure of malacostean disease. A very fair suggestion was made that if it were considered desirable to conserve the uterus in such a case, it would be desirable to try to bring about the union, as Sänger has suggested, by dissecting off the peritoneal membrane from the edges of the wound, and bringing these raw edges together with a double set of sutures—one set for the muscular edges, and the other and more superficial for the inverted peritoneal surface. Perhaps, on the other hand, Tait was right in saying that they should drain the wound altogether through the abdominal wall. But he was satisfied still that Porro had right on its side, for it gave them the complete control of the hæmorrhage, and prevented the risk of draining of any kind into the peritoneal cavity. Also it was one of the advantages of the operation, that they could anticipate the period of labour, and operate under much more favourable conditions than in the other operation. He had noted the albuminous condition of the urine in his own case, and he had no doubt that that also was a very unfavourable element in the woman's condition.

Dr. Arnot, in his reply, said that, as rapidity of operation was the great essential, he had not taken particular note of the hæmorrhage from the placenta. But it was not great. As to silver sutures, he did not think they would necessarily produce a fatal result.

Dr. Hart said he only wished to know if he had cut the sutures short, or kept them long and brought them out at the wound.

Professor Simpson said that catgut sutures were not at all satisfactory. They required to be strong, and silk was the best material, and should be double-knotted.

Dr. Arnot, continuing, said that, in Dr. Simpson's case, he thought that if he had made exactly the same stump in a case not complicated by the tumour, he would not have had the same difficulty. The difficulty, he thought, lay in the tumour and not in the stump. In regard to the incision, he had come to the conclusion that it was an error to make the wound as small as possible. The great thing was to have plenty of room to see what they were doing. In regard to the question of saving the child, he thought, with all deference to the authority of Schultze and those present, that in cases of delicacy,—where the danger consisted in the weak action of the heart, and where just a little would turn the scale,—it was not a good thing to take the child and fling it about in a way he had seen done here. He thought they would shake the life out of it rather than into it; though the opinion, he believed, was quite heterodox here. He was very much struck by the remark of Prof. Simpson about malacosteon, which was a subject of very great interest in India. In each of the cases he had read the history was—a normal delivery at the full term, once or oftener; then, sometimes, a little difficulty; next, perhaps, a case of craniotomy (a subject which he hoped some day to bring before the Society); or, perhaps, the use of the forceps; and then a very severe case of craniotomy, or such a case as he had just read. There was a decided relation between pregnancy and malacosteon; and it was a curious thing how, in the majority of cases, the women were Mohammedans rather than Hindoos, or any other caste. There was a difference of race between these to some extent, but many of the Mohammedans were of purely Hindoo or aboriginal birth, or nearly so. Their social customs, however, and dietary were extremely different. Regarding the suggestion as to dissecting off the peritoneum, he admitted it was desirable, but did not think many would have the patience to do it, the hæmorrhage being so profuse in these operations, and everything pointing so much to a rapid termination of the operation. He thought the balance of opinion in the Society seemed to be in favour of Porro, and he thought he should defer to it on his return to India, should similar cases come in his way.

The **Chairman**, in closing the discussion, said the Society would be glad to hear further communications from Dr. Arnot on the subject of osteomalacia, and also in regard to the resuscitation of newly-born children.

Dr. **Barbour** then read his paper on the Anatomy and Position of the Post-partum Uterus.

Professor **Simpson** said he regarded this paper as one of very great interest and importance, and of quite special value. One of those preparations seemed to confirm the recent observations of Dr. Ahlfeld as to the mode of separation of the placenta. They were of directly practical importance, too, as bearing upon a question which had been discussed in the Society recently as to the mode of detachment and extrusion of the placenta, agreeing with Dr. Ahlfeld in showing that Schultze and other observers were right in the view which they enunciated that the detachment of the placenta was primarily an effort of the uterine contraction, and began in the centre of the placenta; that, as a consequence, there occurred a retro-placental hæmatoma, as it were. Then, with the further uterine effort, the placenta was detached at its margins, so that in the greater proportion of cases they did get the placenta expelled with its margins everted—the placenta always being expelled first and the membranes subsequently. Dr. Hart and Dr. Barbour had already done good service in indicating the importance of studying the cellular tissue of the pelvis, especially in puerperal cases, as leading them to understand why cellulitis so often went on to a purulent stage in puerperæ, and the tendency of such conditions to rise out of the brim and point at Poupart's ligament, and one or other of the groins.

Dr. **Hart** also regarded the paper as one of very great value, as it had specially brought before the Society some points not very well, if at all known before, as to the relations of the membranes in the uterus after the child was expelled. He had always held that the contraction of the uterus caused wrinkling of the membranes, and that, as the result of the uterine efforts, the deep membranous layer of the decidua described by Engelman, Leopold, and others, got broken, and snapped through.

Dr. **Barbour**, in reply, thanked the Society for the consideration it had given to his paper.

F. A. Maciver.

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## MEDICO-CHIRURGICAL SOCIETY.

### *On Wednesday, 5th March*, 1884.

At the fifth ordinary meeting of the Society, held last Wednesday, after the exhibition of a Cast, and specimen of unusual Bursal Tumour of the Knee by Dr. Miller, and of a Drill and Screwing Bone-forceps by Dr. Maclaren, of Carlisle, two papers of more than usual interest were read. The first was by Dr. Maclaren, of Carlisle, "On Five Cases of Amputation at the Hip-joint"; the second, by Dr. John Duncan, was an important confirmation of a previous paper, and was on "Wound Treatment without the Spray."

Dr. **Maclaren**'s cases were all those of disease of the hip-joint, involving a greater or less amount of the femur, and sometimes of the acetabulum as well. One of the chief objects of the paper was to advocate the method of amputating in such cases, by the method recommended by Mr. Furneaux Jordan; and in

## TABLE OF CASES OF AMPUTATION AT THE HIP-JOINT BY THE FURNEAUX JORDAN METHOD.

*To Illustrate Dr. Maclaren's Paper.*

| SURGEON. | AGE | SEX | DISEASE. | DATE | JOURNAL. | RESULT. | REMARKS. |
|---|---|---|---|---|---|---|---|
| Dr. Reeves, Carlisle | 6 | M | Acute necrosis of Femur | 1867 | Unpublished | Recovery | Now alive and well. |
| do. do. | 12 | M | do. do | 1876 | do. | do. | do. do. |
| Mr. Furneaux Jordan, Birmingham | 16 | M | Necrosis of Femur | 1879 | *Lancet*, 22nd March, 1879 | do. | |
| do. do. do. | 19 | M | Hip disease, Excision | 1879 | Unpublished | Death | |
| do. do. do. | 17 | F | do. | 1880 | do. | Death | |
| do. do. do. | 11 | M | do. | 1881 | do. | Recovery | |
| Mr. J. F. West, Birmingham | 46 | F | Epithelioma of stump | 1879 | *Lancet*, 4th Oct., 1879 | do. | |
| Mr. Beddard, Nottingham | 24 | M | Hip disease, Excision | 1879 | Unpublished | do. | |
| Mr. Littlewood, Nottingham | 5 | M | do. do. | 1879 | do. | do. | [visceral disease. |
| Dr. Marshall, Nottingham | 6 | M | do. do. | 1879 | *Lancet*, 10th Jan., 1880 | do. | Died 3 months after from |
| do. do. | 7 | F | do. do. | 1879 | do. do. | do. | |
| do. do. | 2½ | M | Hip disease | 1879 | *Br. Med. Jour.*, 7th Oct., 1882 | do. | |
| do. do. | 5 | M | do. | 1880 | Unpublished | do. | |
| do. do. | 11 | M | do. | 1881 | do. | Death | |
| Mr. Pilcher, Boston | 12 | M | Hip disease, Caries of Ilium | 1880 | do. | Recovery | |
| Dr. Maclaren, Carlisle | 10 | M | Acute necrosis of Femur | 1880 | *Ed. Med. Jour.*, Dec., 1881 | Death | |
| do. do. | 17 | M | Chronic suppurative ostitis of Femur | 1880 | do. do. | Recovery | Now alive and well. |
| do. do. | 20 | M | Hip disease | 1880 | do. do. | do. | do. do. |
| do. do. | 6 | M | Acute necrosis of Femur | 1882 | *Br. Med. Jour.*, 27th Jan. 1883 | do. | do. do. [pelvis. |
| do. do. | 12 | F | Hip disease, Excision | 1883 | Unpublished | do. | Has still sinuses going to |
| Mr. Spofforth, Kidderminster | 20 | M | Hip disease | 1882 | *Lancet*, 6th May, 1883, by Mr. Jordan Lloyd | do. | [Tuberculosis, Stump solid. |
| Mr. Jordan Lloyd, Birmingham | 10 | M | Hip disease, Excision | 1882 | do. do. | do. | Died 7 months after, of acute |
| Mr. Bennett May, Birmingham | 5 | M | Acute periostitis of Femur<br>Osteomyelitis Septicæmia | 1882 | Unpublished | Death | |
| do. do. do. | 13 | F | Hip disease, Necrosis of Femur and Ilium, Excision | 1883 | do. | Recovery | Still has unhealed sinuses. |
| Dr. Lediard, Carlisle | 4 | F | Hip disease, Excision | 1883 | do. | do. | Still has unhealed sinuses. |

order to impress this the more, the accompanying table, with additional cases, was distributed among the members present. In the twenty-five cases tabulated there are six deaths recorded, although, as one of these occurred three months after the operation, it need not be taken into account. For restraining hæmorrhage, Dr. Maclaren preferred Davy's lever applied to the common iliac artery, especially if the operation were on the left side. He also employed Lister's abdominal tourniquet and digital compression, and thought favourably of compression by means of an elastic bandage. In the course of the remarks which followed, Professor Annandale stated that he believed that had early exploratory incision been employed in many of these cases, and the diseased or necrosed bone been removed from the upper end of the femur, the further spread of the disease would have been stopped, and the necessity for amputation obviated. In performing the amputation, he preferred to saw the bone at first at the level of the incision through the soft parts, and afterwards to dissect it out. Where the nature of the case permitted it, he would recommend leaving the head of the femur *in situ*—thus not interfering with the hip-joint, and not having any unoccupied hollow in the acetabulum. His experience of Davy's lever had not been favourable, and he preferred the abdominal tourniquet, although he would try an elastic bandage first. Dr. John Duncan said that, while assistant surgeon in temporary charge of Professor Spence's wards, he had many years ago adopted a method like that of Mr. Furneaux Jordan. He had used an elastic band, secured on the outside from above to prevent its slipping down, having found that the abdominal tourniquet was apt to interfere seriously with respiration under the administration of chloroform. He had found that Dupuytren had advocated the same method of operating. Dr. Bell pointed out that the late Professor Syme had found the same difficulties with the abdominal tourniquet, and had latterly intended to operate in a way similar to the one just advocated, had a suitable case presented itself. Dr. Bramwell pointed out the interest of the record of one of the cases, where the child had evidently recovered from extensive waxy disease, even while the suppuration was continuing. Dr. Watson had seen cases of the same sort, but suggested that mistaken use of alcohol, and not suppuration, might have been the cause of the waxy disease. Dr. M'Gillivray had drawn his attention to the fact that a French surgeon had, in 1743, suggested an operation similar to the one going by Dr. Jordan's name. He alluded to the difficulty of draining abscesses within the pelvis, and suggested a method of doing so by making a new channel from beside the tuber ischii.

Dr. DUNCAN'S paper was listened to with much interest, although for want of time some parts of it had to be omitted. He began by advocating a drain of plaited catgut, as suggested by his house-surgeon, Dr. Wilson, having been previously dissatisfied with absorbable drainage-tubes, since they remained in too long, and delayed the healing. After a year's experience, he preferred carbo-glycerine of the strength of 1·12 or 1·20 (the latter being strong enough) to any other lotion, the dressings being oiled silk, smeared with carbo-glycerine next the wound, and dry salicylic cotton-wool above. To prove the efficiency of his method of wound-treatment, and the power of doing without the spray, a number of important successful cases were cited. These included osteotomies, wounds of joints, compound dislocation, psoas abscess and empyema, and successful trefining of the skull for sarcoma. In unfavourable cases of four deaths, only one could be fairly attributed to the method employed. This was in a case where, in a double amputation, one of the wounds had been accidentally contaminated during the operation, and where attempts to remedy this by injection of carbo-glycerine had only combined a putrefactive and an antiseptic irritation, with the result of producing a sloughing cellulitis. A similar combination had produced a like cellulitis in other cases. As regards general statistics; out of forty-one major amputations and excisions, and seventy-nine other operations in hospital, with a large number of minor operations, there were but six deaths in all. Only half of these were suitable for the method, because the skin was unbroken. Six of the fourteen amputations, and two of the seven excisions, had healed after a single dressing. Dr. Bell and Professor Annandale said that they had had similar good results from using Dr. Duncan's mode of wound-dressing, and added their opinion in support of it. Dr. Caird urged that no ground had been brought forward for considering the spray ineffectual, and quoted cases where a wound had remained sweet for months when dressed with the spray, while a single temporary omission of it had caused the wound to become putrid. He suggested that Dr. Duncan's good results might partly be accounted for by the additional advantage of a dry absorbent dressing, and observed that micrococci, and even certain bacilli, may exist in a wound without much harm, provided they are not concerned in the special fermentative process of putrefaction. Dr. Watson alluded to changes in opinion which had taken place in reference to organisms in wounds. In his reply, Dr. Duncan said that the spray was useless; at best it was harmless and *might* be, at the margin for instance, injurious. He had found as a result of experiment with antiseptic atmospheres that a considerable time was required before organisms could be destroyed—two hours, for example, by strong vapour of eucalyptus oil.

From want of time, Dr. BRUCE's paper on "Poisoning by Bi-sulphide of Carbon" was postponed. CHARLES W. CATHCART.

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## GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

### DISCUSSION ON ALBUMINURIA: ITS PATHOLOGY AND CLINICAL SIGNIFICANCE.

*On Tuesday, 11th March.*

THIS discussion was concluded on Tuesday evening last—the President, Dr. M'CALL ANDERSON, in the chair. Throughout the greatest interest has been manifested in the subject, and no little food for thought has been brought forward in most able addresses and papers given by men eminently qualified to speak authoritatively, and the promoters are to be congratulated on the result of their labours.

Dr. MIDDLETON, Glasgow, wished to call attention to the frequency of albuminuria in specific fevers, remarking specially upon its occurrence in typhus and enteric fevers. Examining the urine daily for several weeks in each case, he found albumen present in twenty-six out of thirty, and in five of these in considerable quantities. It had been found on the fourth day of the disease, but was usually found to be present on the admission of the patient to hospital on the tenth or eleventh day of the disease. He mentioned that in typhus, tube-casts, epithelial in their nature, were frequently present even when there was no albuminuria. Summing up, he stated that albumen was present in the urine in 85 per cent. of the cases (88 per cent. in typhus); that it made its appearance during the first week of the disease, and that its presence indicates a severe course of the disease; that where tube-casts are found, with the passage of a small amount of urine of low sp. gr. containing albumen, the prognosis is grave, especially in the case of Enteric fever.

He considered that the importance of the lymphatics of the kidney had been sadly underrated by those who had followed Dr. Newman. Their power as absorbents (mechanical) had been passed over too lightly, as the epithelium did not absord the water, but by its vital action eliminated the albumen; and he pointed out that in Diabetes the epithelium is healthy, and that the albumen may be absorbed by it in considerable quantities, the water continuing down to the bladder.

In specific fevers the tension is not increased, but may be very greatly diminished, but the epithelium has its power impaired, hence the passage onwards of the albumen with the other constituents of the blood. In the same way he would account for the so-called physiological albuminuria which is caused by changes in the epithelium brought about by indiscretion in diet, &c. These changes might be made good, or there is a gradual downward tendency, and he quoted Dr. Munn, who, in sixty-nine such cases (lasting over three years) found that four died and that others deteriorated very greatly as regards their health. Hence the importance of this symptom in life insurance work.

Dr. **Lindsay Steven** (Glasgow) objected very strongly to the term physiological albuminuria, but considered that cases in which this so-called condition is present should be utilised to throw light upon the problem. After defining the function of the kidney as that of secreting the urine with its salts, but of preventing the passage of albumen from the blood, he drew attention to the great differences between the results of simple increased blood-flow and the result of hyperæmia with irritation or malnutrition, leading to a loss of vitality in the vessels, referring to the loss of vitality in anæmia (followed by œdema at ankles). In Diabetes mellitus, there is an increased amount of blood passing through the kidney, but seldom accompanied by albuminuria, and with no œdema.

In 53 examinations of the urine from 11 cases of Diabetes mellitus, he found albumen present on every occasion in 1 case only, once in 8 examinations in a second, once in 6 in two cases, and once in 5 in 1, so that it was persistent in one case only, and transient in 4 out of the 11, and so on with other conditions where there is simple hyperæmia. Even in chronic venous congestion of the kidney, the albumen never makes its appearance unless some structural lesion is also met with. He further believed that the toxic agents mentioned by Dr. Finlayson, and the nerve centres had trophic action in addition to the mere vaso-motor action, which must play a prominent part in the condition.

He compared the acute and chronic inflammatory exudations (from any surface or in any position), and showed how these exudations must affect the nature of urine in the various forms of Bright's disease. Against Dr. MacGregor Robertson's theory, that the process is one of pure filtration, he quotes Cohnheim and Leube, and pointed out how vessels in other positions have a selective power (cerebro-spinal fluid, hydrocele fluid, &c.).

He briefly summarised his conclusions as follows:—

(1.) That in a typically healthy kidney no albumen can pass from the vessels into the glomerular capsule.

(2.) That when albumen is present in the urine it is due to a loss of vitality, which may be the result of an inflammatory process or an amyloid change in the walls of the vessels; a toxic agent; want of tone, &c.

(3.) That increased pressure alone seldom, if ever, gives rise to albuminuria.

Dr. **Renfrew** (Glasgow) drew attention to the importance of the germ theory to albuminuria, especially in connection with the zymotic diseases, and he also gave it as his opinion that there must be a sharp line of demarcation between the acute and the chronic forms of Bright's disease.

Dr. **Perry** (Glasgow), looking at albuminuria from a clinical point of view, thought that it is oftenest due to toxic agents; and he could quite agree with Dr. Finlayson if that gentleman would add organic changes to the constitutional disturbances as the causes of chronic forms of chronic albuminuria. He insisted upon the importance of products of digestion as a factor in the causation of the chronic form of albuminuria, and pointed out that cases due to this cause are not seen, not because they do not exist, but because it is only the acute forms that are presented for hospital treatment.

Dr. Perry said that, leaving out certain cases, the renal diseases connected with albuminuria might be divided into two classes, the first of which includes amyloid disease, with all its ordinary antecedents; and in passing he might mention that, since the introduction of antiseptics, suppuration and amyloid disease were much more rarely met with; in fact, he found that now a pure amyloid kidney is seldom found. He could not agree with Dr. Coats that there is a large amount of albumen in the urine in the true waxy kidney, as he finds that there is usually some interstitial change, perhaps of an acute character, to account for the albuminuria.

The second class is due to the mode of living, alcohol, &c. In most cases of long-continued indigestion the blood is furnished with improper nutrient elements, and diseased processes are set up in the vessels or the surrounding tissues, and so in the kidney renal degeneration is a result of long-continued elimination of morbid digestion products.

As a matter of experience he found that those who had abstained from the use of alcohol from youth seldom suffered from interstitial nephritis, though they were by no means exempt from the other forms. At the same time it must not be supposed that he credited alcohol with too much of the responsibility; but it, along with an imperfect or too free diet, must be looked upon as the cause of a large proportion of the cases of nephritis.

Dr. **Newman**, in rising to reply, said he had received a communication from Professor Cleland, which at that late hour they had better hold as read; it would be published in the "Transactions" of the Society. In answer to Professor Greenfield, he stated that he took a case as an illustration, not as a basis, and again, were the case beyond the sixth week it would have ceased to be a parenchymatous nephritis, the urine would become increased in quantity whilst the albumen would be diminished. He agreed that all kidneys should be examined microscopically, as many are thus found to be in an advanced state of disease which, to the naked eye, appear normal, and *vice versa.*

The tendency throughout the discussion has been to consider Bright's disease in its unity. There was, Dr. Newman agreed, a certain fitness in this; but he still held that all cases of nephritis should be classified according to the most prominent appearances, in reference to which, he remarked, that we worked too much in the laboratory, and too little in the hospital. As yet, he said, he had been unable to demonstrate the much talked-of layer of epithelium covering the glomerular tuft, and he considered it simply an accident of development. He said that, in all experiments quoted by Dr. Coats, there was a second interpretation to be given, and we should always take the one which explains most facts. In reference to amyloid disease, he agreed with Dr. Perry as to the comparative infrequency at the present time, and also as to the complications which are found where there is marked albuminuria.

In waxy disease the intertubular capillaries are first affected, the lumen of the capillary is diminished, and there is an increased tension in the glomerular capillaries; the epithelium remains intact until a late stage in the disease. The amyloid material in the walls of the vessel separates the tubule from the lymphatics, so that little water is carried off, but all the albumen may be separated by the healthy epithelium. He had only been able to find one case in which there was a supplementary efferent vessel from the glomerulus, so that he considered this must be a rare condition. He thought that Professor Greenfield had confused pressure and velocity, and that he had denied in the normal a condition of increased pressure, which, at the same time, he assumed, could be present in a diseased condition.

He must submit that his theory was not Ludwig's theory, who has now given up the view that colloids pass from the glomeruli in health; and, lastly, he agreed that the term physiological albuminuria was not a good term, but that in this discussion it had proved extremely useful.

The President, Dr. M'Call Anderson, said that, although nothing new had been brought forward, there had been given much food for thought. They had had much diversity of opinion, and each man who had brought forward a theory had the pleasure of having it politely but firmly contradicted; and he reverted to some of the various opinions expressed.

He referred to Bouchard's recent experiments with chloroform, and its effect in bringing about albuminuria in animals.

In acute poisoning, he considered that the cause may be indirect, the high fever, not the poison, being the direct agent; for if the fever be removed the albumen may disappear.

In regard to physiological albuminuria, he finds that albumen is present only in such cases where from the surroundings we should expect it.

As an example of albuminuria occurring with neurotic affections, he might mention, as perhaps the best example, exophthalmic goitre. In this condition there might be albuminuria or dropsy, or both, without the presence of organic kidney disease. He mentioned two cases (sisters), one of whom died from phthisis whilst the other recovered, the dropsy disappearing as the exophthalmic condition disappeared.

He warned practitioners against depending upon albuminuria for their diagnosis of waxy and granular disease, and in the same way dropsy was by no means frequently present in these conditions, so that most hopeless conditions may be present where their presence was not suspected; and again, he pointed out that there may be high tension for some time and no Bright's disease may result; still, as Dr. Mahomed pointed out, the patient is then in a very receptive condition as regards nephritis. Against Prof. Hamilton's ingenious theory, it might be pointed out, that in disease the lowering of the specific gravity of the blood-serum is a slow process, whilst the increase of tension may take place very rapidly. Then, too, in a patient who has lost much blood, fluid (water chiefly) is absorbed from the tissues, and the specific gravity is altered without the untoward results one would expect. He considered that the specific gravity of the red blood-corpuscles must alter with that of the fluid in which they float.

As regards the tests for albumen, there had no doubt been great diversity of opinion, and much valuable information had been contributed. As the result of his own experience he might say that picric acid, as used with the precautions suggested by Dr. Kirk, was a most beautiful and an invaluable test. He mentioned the several fallacies to be avoided, and closed the discussion by expressing the hope that at no distant date the treatment of albuminuria might be made the subject for debate.

A full report of the discussion will, as previously stated, appear in the *Glasgow Medical Journal*. Those who wish to have the collected papers in a convenient form may, I believe, obtain them in the "Transactions" of the Society, by applying to the Secretary, Dr. Newman.

G. Sims Woodhead.

# REVIEWS.

**Reports of the German Imperial Board of Health.** (Mittheilungen aus dem Kaiserlichen Gesundheitsamta.) Edited by Dr. Struck. Vol. ii. February, 1884.

THIS volume of Reports has just come to hand. In it are given most valuable articles by Dr. Koch and others of the staff working under the direction of Dr. Struck. The articles, eleven in number, extend over 500 pages.

1. The Etiology of Tuberculosis. By Dr. R. Koch, illustrated with fifty-three beautiful chromo-lithographs.
2. On the Influence of Age and Sex on the Death-rate from Phthisis Pulmonalis.
3. A Contribution to the Relations of Tubercle-bacilli in the Sputum. By Dr. Gaffky.
4. On the Disinfection of Phthisical Expectoration. By Drs. Ernst Scholl and Bernhard Fischer.
5. Experimental Studies on the Artificial Attenuation of Anthrax-bacilli and Anthrax-infection by "Dieting." By Drs. Koch, Gaffky, and Loeffler.
6. On the Quantitative Estimation of Micro-organisms suspended in the Atmosphere, illustrated with 14 chromo-lithographs. By Dr. W. Hesse.
7. On the Entrance of Fungus Spores into the Respiratory Passages, and the Diseases of the Lung caused by them; and on the Fungus of Fowl Favus (*Tinea Galli*). By Professor Schütz.
8. On Disinfection by means of Chlorine and Bromine. By Drs. Fischer and Bernhard Proskauer.
9. Researches on the Fermentation of Milk, brought about by Micro-organisms. By Dr. Ferdinand Hueppe.
10. On the Etiology of Typhoid Fever. By Dr. Gaffky.
11. Researches on the Significance of Micro-organisms of Diphtheria in Man, in the Pigeon, and in the Calf. By Dr. Friedrich Loeffler.

In addition to the lithographs, there are thirteen woodcuts. We shall take an early opportunity of presenting abstracts of some of these important reports.

G. Sims Woodhead.

**Transactions of the American Gynecological Society.** Vol. vii. for Year 1882. Philadelphia: H. C. Leas & Son, 1883.

THIS handsome volume will maintain the fame of its predecessors, and in some respects surpass it. All the articles are practical, and some of them highly valuable. At the same time, we must note the defect of the absence of papers investigating any special points in the science of gynecology.

The opening address by Emmet, on "A New Method of Exploration with the Pathology and Treatment of certain Lesions of the Female Urethra," is one of the most important in the volume. All know how unsatisfactory until within recent years our knowledge of urethral disease has been—a result due to insufficient means of examination. By the finger and sound one necessarily failed to detect many lesions, especially small polypi. The extended use of Skene's speculum was a marked advance; and now, in Emmet's method of incising the urethral canal, we have a valuable means of accurate diagnosis and treatment.

Emmet's plan is to incise the urethra in the middle line, the incision stopping short of the meatus and neck of the bladder, so as to avoid incontinence. Details as to the exact way to do this are out of place in a review. We may point out, however, that the incision may be closed at once, or, by stitching the mucous-membrane of the urethra to its corresponding vaginal edge, a fistula is made, to be closed, of course, by a subsequent operation.

It can be at once understood that polypi can best be detected by this method, and that prolapse of the mucous-membrane of the urethra can be treated admirably. Through the artificial opening the excess of mucous membrane is drawn, cut off, and the raw edges stitched.

Several cases are narrated where unavailing treatment was directed to the bladder, and where Emmet detected a urethral lesion (polypus, &c.) by his "button-hole" operation. The whole paper is worthy of very careful perusal, both from its original matter and careful deduction.

In the discussion following its reading, Drs. Barker and Skene took part, Dr. Skene pointing out some necessary limitations to the operation.

In an elaborate paper, Dr. Van de Warker takes up the "Mechanical Therapeutics of Versions and Flexions of the Uterus." He considers, classifies, and figures almost all known forms of pessaries.

They form an appalling series of which gynecological science (?) may well be ashamed. Most of them contradict the most elementary points in the physics of the pelvis, and inflict nothing but damage on their unfortunate wearer. The sooner that stem pessaries, anteflexion pessaries, and anteversion pessaries are consigned to our gynecological museums the better for all. Anteversion of the uterus is either normal or the expression of some other pathological condition; an anteflexed uterus is in itself as harmless to its possessor as a roman nose. The most amusing fact is that there is not an anteversion or anteflexion pessary (*i.e.*, vaginal forms), which can effect either the versions or the flexion, yet they are solemnly used for this with benefit.(!)

Out of all the misplaced ingenuity in pessary-mongering, there have resulted only two really useful ones—the Hodge or Albert Smith and the ring pessary.

Dr. Van de Warker's article is both useful and interesting, and will be valuable historically.

Space will not permit criticism or review of the papers by Barker, Busey, Mann, Thomas, Baker, and others. We have said enough to show the value of this volume.

D. Berry Hart.

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## *REPORT ON OBSTETRICS.*

1. **Neugebauer, François** (of Warsaw).—Contribution à la Pathogénie et au Diagnostic du bassin Vicié par le Glissement vertébral (Spondylolisthesis). (Contribution to the Pathogenesis and Diagnosis of the Pelvis Deformed by Vertebral Displacement.) *Annales de Gynécologie*, tome xxi. Février, 1884.
2. **Tarnier.**—His Basiotribe. (M. Tarnier's Basiotribe). *Annales de Gynécologie*, tome xxi., Janvier, 1884.
3. **Stadfeldt.**—Sind als Desinficiens in der Geburtshilfe Sublimatlösungen der Karbolsäure Vorzuziehen? (Are Corrosive-Sublimate

Solutions to supplant Carbolic Acid in Midwifery?) *Centralblatt für Gynäkologie*, No. 7, 1884.

4. **Spooner, E. A.** (Philadelphia).—STERILITY, DUE TO CONTRACTION OF THE UTERINE CERVICAL CANAL, COMPLICATED OR NOT BY FLEXIONS OR VERSIONS, SUCCESSFULLY TREATED MECHANICALLY BY THE UTERINE BOUGIE. *American Journal of the Medical Sciences*, Jan. 1884.
5. **Goodell, William** (Pennsylvania).—A YEAR'S WORK IN OVARIOTOMY. *The Medical News* (Philadelphia), 16th Feb. 1884.

1. **Neugebauer on the Pathogenesis and Diagnosis of the Pelvis Deformed by Vertebral Displacement.**—The form of pelvic distortion treated of in the above paper is one of extreme rarity; so uncommon is it that the existing specimens known to science number less than twenty, while only about thirty living patients have been recognised as suffering from it. Dr. F. Neugebauer has made a special study of the disease, and has enjoyed exceptional opportunities of carrying out his investigations both as regards its pathology and its clinical features, as he has had the good fortune to examine ten out of the seventeen pelves existing at present in Russia, Germany, and France, and has also made clinical observations upon twenty-six patients still alive who are known to be suffering from this disease. His first contribution to the subject appeared in 1881, in the form of an inaugural dissertation at Dorpat. Since that time, he has published in the *Archiv. für Gynækologie* at least five papers bearing upon the etiology and diagnosis of the deformity.

The paper at present under consideration is one read before the meeting of the Anatomical Society of Paris in November, 1883; and in it the author records the additions made to his knowledge by a study of the specimens and cases of the disease seen by him in Paris.

The chief pathological characteristic of the spondylolisthetic pelvis is the displacement downwards and forwards of the last lumbar vertebra, and with it the lumbar spine into the true pelvis, the fifth lumbar vertebra coming to lie with its inferior, or in acute cases its posterior, surface in apposition to the anterior aspect of the first sacral segment. The last lumbar vertebra lies, therefore, in the upper strait of the pelvis, greatly diminishing its antero-posterior diameter, and forming in well-marked cases a very formidable obstacle to the delivery of a child. To Kilian we must give the credit of being the first to point out this very interesting condition; while Breisky, Barnes, Birnbaum, Lambl, Swedelin, Herrgott, and others have since done much to elucidate its pathology and render its diagnosis tolerably certain. Various theories have been advanced to explain its etiology, such as congenital hydrorrhachis (Lambl), dislocation of the lumbo-sacral articulation (Weber-Ebenhoff), or disintegration of the vertebral arches by caries or Pott's disease (Herrgott). None of these seem altogether satisfactory to Dr. Neugebauer, who has, therefore, advanced a hypothesis closely resembling that of Prof. Herrgott, but differing chiefly in the manner in which the facts are interpreted.

The author is of opinion that the vertebral displacement arises always during extra-uterine life, and without the intervention of any primitive dyscrasia, any affection, inflammatory or specific, of the bones,—such as caries, rickets, osteomalacia or osteites,—and states that the deformity is due to the physiological weight of the trunk, especially when increased by repeated pregnancies, adiposity, &c., acting upon vertebræ which have sustained an injury, that it is not limited to the sacro-lumbar articulation of the vertebral column, and that it is not necessarily connected with the age or the sex of the patient. He considers, further, that it is less a displacement of the fifth lumbar vertebra as a whole, but more correctly a sliding of the anterior part of the vertebra upon which rests the fourth lumbar vertebra, and through it the weight of the whole trunk, the posterior part remaining *in situ*. By the anterior part is meant the body, the pedicles of the arch, the transverse processes, and the superior articular processes of the vertebra, whilst the posterior part includes the laminæ of the arch, the spinous process, and the inferior articular processes. The posterior part is only secondarily displaced from the traction exerted upon it by the anterior displaced portion through the intervention of the ligaments and the new bone (callus). In all these cases, the antero-posterior diameter of the vertebra is increased, and the greatest degree of elongation is to be seen at the middle part of the vertebral arch. Two great pathogenic causes may, therefore, be enumerated. First, it may be congenital from deficient ossification between the two principal nuclei of each half of the vertebral arch (spondyloschizis lateralis inter-articularis congenita); or, secondly, it may follow a complete or incomplete fracture of the arch, where the new bone has been insufficient, and the two halves of the vertebra consequently drawn away from one another; but, thirdly, spondylolisthesis may be caused by the displacement and carrying to the front of the fifth lumbar vertebra as a whole, from fracture of the sacro-lumbar articular processes. In the case of the pelvis of Breslau, and that of Paderborn, this last-mentioned cause has probably been at work.

Supposing that a fracture of the arch of the fifth lumbar-vertebra has occurred, and that the two portions (anterior and posterior) are held together by the surrounding structures, ligamentous and osseous, how is the complete dislocation effected? The body of the last lumbar, through which is transmitted the weight of the trunk, being no longer placed perpendicularly to the base of the sacrum, is displaced forwards a little, and the oblique pressure continuing, it is more and more tilted forwards. As the anterior portion slowly descends into the true pelvis, curving in under the sacral promontory, the vertebral arch is gradually pulled out, and may ultimately snap. The last lumbar-vertebra then becomes fixed in this oblique position to the anterior aspect of the sacrum, below the promontory, by means of firm osseous union. A synostosis may, however, form before the bone has descended so completely into the pelvis, the vertebra being fixed to the sacrum in an intermediate position. This gives us the variety, termed by Lambl, spondyloklisis, while the complete descent may be named spondyloptosis.

The author then tabulates the varieties of spondylolisthesis as follows:—

(1.) Sliding of the anterior segment of the fifth lumbar vertebra in consequence of a solution of the continuity of the arch in its middle (inter-articular) parts.

(*a*) Congenital from arrested development (spondyloschizis lateralis congenita).

(*b*) Traumatic from fracture, incomplete repair, deformation of the new bone, insufficient callus, &c.

(2.) Sliding of the last lumbar vertebra *en masse* from forcible tearing away of the sacral articular processes.

Dr. Neugebauer agrees with Professor Herrgott as to the factors which produce the deformity, but attributes to them an inverse importance. The latter writer considers that the changes in the substance of the bone, due to osteitis, form the starting point of the disease, traumatism being only a secondary and accessory cause; while Neugebauer looks upon the traumatic influence as the chief, osteitis and the osseous deformities being only deuteropathic.

The author then proceeds to detail a few of the diagnostic features of the disease, such as the short and sunken appearance of the abdomen, the wide separation of the iliac crests, the lessening of the pelvic inclination, and the signs made out on vaginal examination.

Appended to this paper are a list of the specimens of the spondylolisthetic pelvis, an enumeration of the clinical observations made on patients at present alive, and a copious bibliography of the literature of the subject.

2. **M. Tarnier's Basiotribe.**—At the meeting of the Academy of Medicine of Paris on 11th December, 1883, M. Tarnier showed an instrument which he has invented and named the "basiotribe." It is for the purpose of breaking down the head of the fœtus, and may be roughly described as a combination of the basilyst and the cephalotribe. It is composed of two lateral blades and a central perforating instrument, with a screw as the crushing power. It is 41 centimetres long, about 4½ broad, and weighs 1200 grammes. The central bar, which carries a quadrangular perforator, is first applied to the head, which it pierces by means of a rotatory motion. The left lateral blade is then applied, and the skull between it and the perforator is crushed. The right lateral blade is next applied in the same way as the right blade of the forceps, articulated to the other two portions, and the other half of the skull similarly broken down. Thus the size of the head is diminished by two successive crushings, and the extraction then proceeded with. From experiments on the cadaver, M. Tarnier considers that this instrument offers superior advantages when compared with the cephalotribe and the cranioclast.

J. W. BALLANTYNE.

3. **Stadfeldt: Are Corrosive-Sublimate Solutions to supplant Carbolic Acid in Midwifery?**—Stadfeldt gives the results of intra-uterine injections of corrosive-sublimate solution (1-1500) on seven puerperæ. The solution was employed tepid, and by means of the douche. Usually two to five injections in all were found sufficient; in one case thirteen were necessary. In six of the cases all went well except that two had diarrhœa, and one a slight gingivitis. The seventh case proved unfortunate, however, and the history of the case is given fully as follows:—The patient was a healthy unmarried primipara aged twenty-three. The child was born naturally on 25th December, 1883, but the placenta was retained, and there was also some hæmorrhage, 800 grammes blood being collected. The uterus and vagina were washed out with a 30 per cent. solution of carbolic lotion.

The temperature ranged between 37·8°C. and 39·6°C. On the 30th December an intra-uterine injection of corrosive-sublimate solution was employed (1-1500). When about 300-400g. of the fluid had been injected, the patient complained of sudden headache, choking in the throat, and had a somewhat curious look. Pains began in the hypogastrium, and radiated into the inguinal regions; pulse 76 and regular. The pain passed off in two hours. In the evening there was diarrhœa, and a marked amount of albumen in the urine; tongue irritable, but no salivation. Ultimately the patient died on the 4th of January, ten days after the confinement, and five days after the corrosive-sublimate injection.

On post-mortem, 100ccm. clear fluid were found in the peritoneal cavity. The peritoneum was natural, and no trace of any inflammatory process was present. The uterus was normal for that period of the puerperium, and the uterine wall and sinuses were natural. The calibre of the uterine end of the Fallopian tube admitted a surgical probe. The important changes were found in the kidneys and bowel. Both kidneys were large, pale, and flabby; capsule easily stripped off, cortex swollen, glomeruli colourless, and the cortex marked off distinctly from the pyramids.

Microscopically the epithelium in the convoluted tubules was fattily degenerated in some places, with similar but less-marked changes in the straight tubules. Hyaline cylinders were also found.

In the liver, brain, and kidneys no trace of mercury was found on chemical examination. The large intestine was ulcerated.

In this case Stadfeldt has not established that mercurial poisoning caused death, more especially as the state of the urine before the administration of the mercury injection was not known.

D. Berry Hart.

4. **Spooner: Sterility Successfully Treated Mechanically by the Uterine Bougie.**—In cases of sterility, due to flexions or versions of the uterus, Dr. Spooner is of opinion that the use of pessaries in nulliparous patients is injurious, for such instruments frequently give rise to irritation and inflammation, thus rendering conception less likely to occur. He, therefore, advocates the use of the uterine bougie, which may be employed for the purpose of correcting the position of the uterus, and at the same time of dilating a partially occluded cervical canal, should that condition be present. The bougies which the author recommends are each 10½ inches in length, tapering slightly towards the extremity, and made of steel, nickel-plated. The uterine curve occupies 2½ inches of the total length, the shaft 5½ inches, and the handle 2½ inches. The sizes he has found most useful are 11, 13, 15, 17, 19, and 21, on the French scale.

The method he pursues is as follows:—Should the patient under treatment exhibit a moderate degree of cervical contraction, No. 11 is introduced, followed by Nos. 13 and 15 in quick succession; and this operation is repeated every week till the larger bougies are easily inserted. The introduction of the whole series is then repeated every week for two months, and after that time the operation requires to be done only once a-month, choosing as the most suitable time the day following the cessation of menstruation. When, in addition to the partial atresia, there is a flexion or version, the bougie is allowed to remain in the uterus for one or two hours, the patient meanwhile remaining recumbent, with the body inclined in the direction opposite to that of the displaced uterus. In extreme cases Dr. Spooner has found it necessary to make three small incisions in the cervix with the hysterotome before introducing the bougies.

The author has treated twenty-seven cases of sterility successfully by this method, the details of four of which are included in this paper. The procedure cured not only the sterility, but also the accompanying dysmenorrhœa and displacement.

5. **Goodell on a Year's Work in Ovariotomy.**—In this paper are recorded twenty-five cases of ovariotomy, performed by the author during the past year. Eleven cases were operated on in hospital with one death (from hospitalism); ten at their own homes, with five fatal cases; and four in Dr. Goodell's private hospital, with one death. He has, therefore, had the comparatively large mortality of 28 per cent. This he partly explains by stating that "he has never refused to operate on a woman, however slim her chance of recovery." Twelve out of the twenty-five were cases of double ovariotomy, the second ovary being positively diseased; but the author is of opinion that the second ovary should be removed even when it appears to be sound, if there is malignant disease of the companion ovary, if the woman has arrived at, or is closely approaching, the menopause, or if she has been sterile. In seventeen cases there were adhesions, and in four cases these adhesions were universal. The

causes of death were shock, septicæmia, excessive vomiting, intestinal obstruction, bursting of a pelvic abscess into the bladder, and obscure cerebral symptoms. In eight cases the tumour had been tapped previously, in one case as often as fourteen times; and of these eight, four died. Dr. Goodell has now performed ovariotomy 110 times.

J. W. BALLANTYNE.

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## *REPORT ON DISEASES OF CHILDREN.*

1. **Magitot.**—SUR LA DESCENDANCE SYPHILITIQUE DU RACHITISME. (The Syphilitic Origin of Rickets.) *Gazette des Hôpitaux*, liii. 1883.
2. **Silbermann, Oscar.**—PAVOR NOCTURNUS. (Night Terrors in Children.) *Jahrbuch f. Kinderheilkunde*, Bd. xx. 3 Heft.
3. **Friedländer, C.**—UEBER NEPHRITIS SCARLATINOSA. (Scarlatinal Nephritis.) *Fortschritte der Medicin*, Bd. i. No. 3.
4. **Cohn, A.**—UEBER EINE BESONDERE FORM ALLGEMEINER ATROPHIE NACH DIPHTHERIE, WAHR-SCHEINLICH NERVÖSER NATUR. (On a Peculiar Form of Simple Atrophy in Diphtheria, most probably of a Nervous Kind.) *Berliner klin. Wochenshrift*, xx. Jahrg., Nr. 1.
5. **Haschel.** — UEBER FUNCTIONSSTÖRUNGEN DER AUGEN NACH DIPHTHERIA FAUCIUM. (On Functional Disturbance of the Eyes in Diphtheria of the Fauces.) *Berliner klin. Wochenschrift*, 1883, No. 30.

1. **Magitot on the Syphilitic Origin of Rickets.**—The author is a strong opponent of M. Parrot's theory of the syphilitic origin of rickets. He takes up the subject of the various changes occurring in the teeth, and brings forward arguments in this connection to prove his assertion.

He considers dental caries and deformity as it occurs in rickets is not syphilitic for many reasons. In acquired syphilis, affections of the teeth do not, as a rule, occur. Fournier agrees in this opinion. The Kabyles in Algeria, where syphilis is endemic, do not suffer from disease of the teeth. In Mexico, Peru, China, and other countries, the same fact stands prominently forward. Cases where dental disease has been observed are known to suffer at a subsequent time from well-marked syphilis, disproving thereby the previous existence of the cachexia. Persons in whom dental erosion exists have been proved not to be syphilitic. Similar affections of the teeth are found in animals, such as cattle and dogs. He admits that syphilis may give rise to dental disease from trophic disturbance. The dentine and enamel are liable to distrophia, but not atrophy, as M. Parrot maintains. The malnutrition of the teeth in rickets he believes to be of trophic nervous origin, and associated with other disorders of the nervous system, as convulsive infantile eclampsia.

2. **Silbermann on Night Terrors in Children.**—The author insists on the necessity of distinguishing between the idiopathic form of the affection arising primarily in the brain from disordered imagination in dreaming, and the secondary variety, which may generally be put down to causes acting reflexly on the central nervous system from the digestive organs. The idiopathic variety arises from objective terror associated with the incidents or thoughts of the child during waking, and generally occurs in delicate, highly-nervous children. The symptomatic form, on the other hand, is met with in perfectly healthy children, in whom the symptoms are brought on by some peripheral

cause acting reflexly through the vagus as the incident nerve. You have commonly, associated with it, other signs of irritation of the nerve, such as hurried respiration and irregular action of the heart. In both varieties amnesia is more or less distinctly marked.

**3. Friedländer on Scarlatinal Nephritis.**—Three forms are described:—

(1.) The earliest form, *Initial Catarrhal Nephritis.*—In it the organ is hyperæmic, the glomeruli standing out as red points; no cloudiness of the cortex; microscopically are found cloudiness and swelling of the epithelium of the convoluted tubes, and in many parts considerable cell-proliferation. Simple resolution may take place with or without fatty degeneration of epithelial elements. There is no permanent distinction of the epithelial lining of the tubules. He considers it essentially a catarrhal process.

(2.) *The Large, Flabby, Hæmorrhagic Kidney (Interstitial Septic Nephritis).*—A rare form of disease, characterised by greyish-red colour of the cortex; glomeruli not visible to the naked eye, but hæmorrhagic points here and there are noticed, as well as hæmorrhagic infiltration. Interstitial substance increased from round-cell proliferation, groups of micrococci are found in the vessels. It is essentially a septic form.

(3.) *Glomerulo-Nephritis (Nephritis Post-Scarlatinosa).*—Characterised by large bloodless glomeruli seen scattered over the cortex in great numbers. The rest of the kidney is normal, no change being observable either in interstitial substance or tubules. On microscopic examination the glomeruli are found enlarged, the vessels being compressed in a sausage-like manner so that the circulation is much interfered with; the distinction between the capsule and the tuft is hardly observable.

**4. Cohn on a Peculiar Form of Simple Atrophy in Diphtheria, most probably of a Nervous Kind.**—The author describes an interesting case of a boy, fourteen years old, who suffered from great emaciation. He had been the subject of an attack of diphtheria, accompanied by local throat affection, with difficulty in deglutition. Nutrition was so interfered with that the boy was reduced to a skeleton. The excretion of urine and fæces were very much diminished. During convalescence, careful observations were made of the boy's weight, and also of the proportion of excreta. Dr. Cohn considers that the extreme emaciation was probably caused by a general disturbance of nutrition of the body, resulting from paralysis of the trophic nerves. Although there was some œsphageal paralysis, the stomach was unaffected. Kussmaul, in such cases, considers it of the highest importance to enforce continued rest in bed.

**5. Haschel on Functional Disturbance of the Eyes in Diphtheria of the Fauces.**—Donders first described this affection, which seems to depend upon implication of the nerves distributed to the ciliary muscle, the pupil being seldom affected. In such cases it has been found that when the children return to school they are often troubled with twinkling of the eyes, heat in the head, aching of the forehead. Haschel describes flashing of light in these cases from affection of the optic nerve, but never found any retinal affection. For these symptoms the author has used strychnine subcutaneously; and for the disturbance of accomodation, physostigmine salicylate.

Jas. Carmichael.

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## ORIGINAL ARTICLES.

### URETHRAL TOXÆMIA.

By P. H. Maclaren, M.D., F.R.C.S.E.

SINCE October, 1883, five cases of toxœmia, following septic inflammation of the urethra, have been admitted to Ward 4. It is unnecessary to detail the individual symptoms of each case, as they presented a very marked uniformity of character, and only differed from each other in degree. From the study of such a group it is possible to educe the clinical features of the disease, and to state them in a clear and concise manner. Beyond this, at present our knowledge of the pathology, morbid anatomy, and therapeutic management of the affection, is extremely limited. What we have learned of late years regarding it is chiefly of a negative kind.

All the patients were males under thirty-five years of age, all enjoying apparent good health until the moment of infection, and in only one example was there any history of previous rheumatic disease. One had suffered four years before from a similar toxœmic attack, and in his case the symptoms presented themselves in the most aggravated form. The systemic infection appeared in two cases on the third day, in two others on the eighth day, and in the remaining case about the third or fourth week, after the onset of the gonorrheal discharge. No prodromal indication of a distinctive nature was experienced in any of the cases, the first evidence of the existence of the malady in every case being a slight degree of pain, combined with a considerable amount of swelling in one or more joints or brusal sheaths. Four of the patients exhibited these phenomena in a metastatic form in a large series of great and small joints, and in one case they were limited entirely to the knee. There was no relation between the degree of pain and the amount of swelling, but the former was uniformly most severe over the lateral ligaments, and the insertions of tendons in the immediate neighbourhood, and was always increased on pressure, or by movement. Severe persistent pain was experienced in one case at the acromio-clavicular articulation, as well as for nearly an inch over the bones on either side of the joint, corroborating

Fournier's opinion that the periosteum frequently participates in the morbid process. When several joints were simultaneously involved, the pain occasioned either utter sleeplessness, or broken unrefreshing sleep, and was usually intensified in the morning. Slight transient redness sometimes accompanied the first appearance of swelling in a joint, which always for two or three days presented a moderate increase of temperature, but on no occasion was there shown any tendency to suppuration. New foci of irritation were either preceded or followed by a subsidence of the pain and tumefaction of previously affected parts, but the pain always lingered long after all traces of swelling were absent, and sometimes was persistently present at one or more parts throughout the whole course of the disease. Groups of muscles were sometimes for several days extremely tender, and in one case the sclerotic and conjunctiva were injected and painful. Anæmia was a notable fact in all the cases. In the patient who suffered most severely the pain, sleeplessness, and disordered digestion, led to a condition nearly approaching marasmus when he was admitted.

The temperature did not exhibit a high pyrexial range, and never exceeded 103°, an occurrence which must be regarded as quite exceptional; while, on the other hand, in all the cases in the morning it frequently fell as low as 97°, even when several joints were acutely tender, and in one case reached 96°, thus showing the marked adynamic character of the morbid process. During the first week of the disease the appetite was usually somewhat impaired, but afterwards digestion improved, and all the patients were able to consume the ordinary full diet of the Hospital.

In every case, from time to time, the urine passed in twenty-four hours was collected, measured, and examined. The calculation of the amount of solids excreted was based upon the specific gravity. None exhibited an excess; four showed average results; and one, the marasmic patient, evidenced a distinct renal inadequency, as may be judged from the latest examination, made last week, where the urine amounted to 43 oz., and the sp. gr. 1010. Although all the patients occasionally perspired rather freely, and passed proportionally condensed urine, free uric acid was not observed, a fact differentiating this affection from rheumatism, with which urethral toxœmia has been so long ineptly associated.

The disease is remarkable for its persistent obstinacy, for although in all the cases the severity of the symptoms was greatly mitigated in a few weeks, in none had they ceased to appear at the end of three months, the full term of treatment in hospital permitted to such sufferers. . In one case, in private practice, mild explosions recur even after a period of three years.

The treatment has been simply empirical. The first indication has been to arrest the discharge from which all the constitutional symptoms have arisen, chiefly by the use of Koch's solution of hyd. chlor., 1 to 2000, or a carbolic solution, 1 to 100. Where the discharge has existed for several weeks, counter-irritation over the upper part of the thigh has proved promptly successful, as Fourneau Jordan has pointed out. Rest in bed relieved the increase of pain induced by pressure in standing or movement; and if the knee and ankle were tender and swollen, encasing the limb in a flannel and plaster-of-paris bandage gave immediate comfort, which was maintained, after the plaster dressing ceased to fit, by the gentle equable pressure over the joints of wadding and an elastic web-bandage—a form of treatment also applicable to the upper extremity. Tinct. iod. was painted over several joints, and sometimes sinapisms were used, but neither seemed to be of much use. In the case first admitted, many anti-rheumatic remedies were tried, including the alkalies, pot. iod., quinine, colchium, salicylate of soda, but no beneficial influence over the cause of the symptoms resulted.

The pronounced anœmia suggested the use of iron, which was given in the form of dialysed solution, twenty minims after each meal; and in order to rectify the capillary paresis which caused or accompanied the articular effusions, an equal quantity of lig. ergotæ was administered at the same time. After some weeks, enumeration of the blood-corpuscles showed that considerable increase had taken place, but the remedial efficacy of the ergot was not decided.

Bromide of potass and syr. chloral were found to be inferior to pil. sap. co. in promoting sleep.

The term, gonorrheal rheumatism, is inappropriate and misleading, and seeing that the phenomena are invariably associated with a specific inflammation of the urethra, and fulfil all the conditions of septic intoxication, so well defined by Dr. B. Saunderson, the words Urethral Toxœmia would locate the site of the cause and describe the character of the symptoms. The essential nature of the disease, however, is not likely to be revealed until pathological chemistry can detect the poison, as well as the subtle changes it effects on the constitution of the blood. The disease is, fortunately, one of comparative infrequency, and most probably its genesis is attributable in greater part to some personal peculiarity of constitution than to a special quality in the amount or nature of the infecting agent. It has been estimated by various writers that from 1 in 200 to 1 in 400 of individuals suffering from gonorrhea become the subjects of urethral toxœmia.

The questions of cause and mode of action of this disease derive at present a considerable collateral interest from the analogy they show, in a milder and more chronic form, to the sudden and severe symptoms occurring in chronic urethral or bladder affections after the passing of a catheter, to which Sir Andrew Clark has drawn the attention of the profession lately, under the provisional definition of catheter fever.

# MATERIAL FOR CASTS.

By Charles W. Cathcart, M.B., F.R.C.S.,

LECTURER ON ANATOMY, SURGEONS' HALL, EDINBURGH.

IN *The British Medical Journal* for 21st October, 1882, Mr. Bowlby, Curator of St. Bartholomew's Hospital Museum, published a formula for a material for making casts, which was very successful in its "resemblance to human flesh, both in colour, texture, and translucency." Previous to seeing the notice of Mr. Bowlby's material, I had been making some experiments with glycerine jelly as a basis for a similar purpose, but had laid it aside for the time and did not take it up again, especially as I thought Mr Bowlby's would be all that could be desired. Latterly, however, having continued the experiments, I find that a substance can be made, certainly as good, and more easily and cheaply than that recommended by Mr. Bowlby, and I therefore venture to bring it before the notice of those interested in such matters.

It may not be out of place to mention that what gave me the idea were those elastic faces sold in India-rubber shops. They are not made of India-rubber, but probably of some composition very similar to that which I am about to describe.

The casting substance is made as follows:—

Of strong clear glue or gelatine (not necessarily prepared) take by weight, say, 4 oz.

Of glycerine (pure is best, but the coarse kind will do) take by measure 4 oz.

Of water, take by measure 1 oz.

Namely, equal quantities by measure and weight of the glycerine and glue, and a quarter by measure of water.

Break down the glue into small pieces, and after soaking for an hour in the water, cold, put into a water bath and allow to melt (which it takes an hour or more to do). Then after warming the glycerine, add it to the now melted glue. If the glycerine be added before the glue is melted, it prevents any further melting from taking place. Unless previously heated the glycerine will coagulate the warm glue, and not mix until the whole has been warmed up again. When thoroughly mixed, this substance can be poured into any mould, and, when cool, it is quite tough and elastic. It will, however, be of a clear, brownish colour, varying according to the glue or the glycerine used, and must be rendered opaque white before it can serve as a basis for casts. For this purpose oxide of zinc is much preferable to French chalk or any other substance that I have tried. This can be made into a liquid paint by rubbing up with glycerine, or into a convenient solid paint, soluble in the melted glue and glycerine. (This was suggested by Messrs. Macfarlane & Co., chemists, to me, and is as follows:—Oxide of zinc, 1 lb.; glycerine, ½ lb.; glue, 1 oz.; mix the glycerine and oxide of zinc, and add the glue melted. When cold it can be cut with a spoon, and small pieces can be added as required.) While the glue and glycerine is warm, the oxide of zinc must be added and well stirred until the whole is of a dull, opaque white. After this, to make a flesh tint, one may drop in either a solution of burnt sienna rubbed up in glycerine, or of vermilion in glycerine. The one does for skins with a good deal of yellow in them, the other for more delicate pink skins. In adding the burnt sienna or vermilion, care must be taken to add only enough to give a warm hue to the whole. The further colouring must be done on the cast when cold; and for this purpose water-colour is, perhaps, the easiest to work with. Rose madder is the best for flesh tints, the various shades of skin diseases, cicatrices, &c., being worked up as desired from the ordinary colour-box.

When it is desired to have a cast of any part, a plaster mould must be first made in the ordinary way. Into this mould, when *dry*, the melted glue and glycerine is poured. I have not found it necessary to prepare the mould in any way as long as it is dry. And as soon as the substance is thoroughly cold, it may be *pulled* out without fear, and is thus much easier to work with than either plaster of Paris or wax.

Besides its uses in illustrating external pathological conditions, it may be employed to great advantage in zoology, for casting fish and other specimens whose colour and form is apt to change by all known methods of preservation; and I hope to be able to use it in a similar way for freshly-removed tumours and diseased organs.

I would further suggest that this form of glycerine jelly might be used to illustrate certain plastic operations, such as hare-lip, to a class. It cuts with something like the consistence of skin, is elastic, and is tough enough to hold stitches.

The cost per lb. may be taken at about 1s. 6d. to 2s., reckoning the strong gelatine at 1s. to 1s. 3d. per lb. (glue would be less), and the pure glycerine at 1s. 6d. per lb.

Specimens kept in my museum, also in a warm room at home, have not as yet altered; a month since proportions advocated were tried. From the large proportion of glycerine present in the substance I am in good hopes that it will maintain its elasticity and pliability.

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# HOSPITAL LETTER.

## UNIVERSITY WARDS FOR CLINICAL SURGERY.

THE arrangements for clinical teaching in the University Wards for Clinical Surgery are as follows:—

*On Monday and Thursday* the Professor gives a special lecture on clinical surgery in the University Clinical Theatre. At these lectures as many cases as can be thoroughly discussed in the time are brought before the class; and the symptomatology, diagnosis, leading characteristics, and treatment of each case carefully studied. Patients who are unable to walk, and whose state does not prevent their being moved from bed, are brought into the theatre on an ambulance barrow, and thus exhibited with but slight discomfort to themselves. All cases of interest which are about to leave the hospital are brought before the class prior to dismissal, and the result of the treatment shown, so that members of the class may have an opportunity of completing their notes of the case.

Specimens of tumours, amputated limbs, excised joints, &c., which have been removed by operation, are shown to the class at the end of lecture and described.

*On Tuesday*, a clinique is given in the ward. Forms, tables, and chairs are arranged in the centre of the ward, in the form of three sides of a square; the beds being turned sideways to the wall in order to make room. Into the centre, the subjects of clinique are brought on their beds, and there shown, and the chief features of each case are discussed.

*Wednesday* is the operation day; such large operations as can wait being left for that day. As far as possible no case is operated upon which has not previously been shown at lecture and discussed.

*On Friday* the Professor sees the out-patients in the theatre, and points out to the large numbers who attend the clinique the diagnosis and treatment in each case.

*On Saturday*, at eleven o'clock, a clinique for senior students is held in one of the wards; the arrangements for accommodation being precisely similar to that for the Tuesday clinique. The invitation to discuss the case is taken advantage of by many, and thus a great number of important points in connection with each case are referred to.

In addition to the above, Dr. James Bennet, the University Clinical Tutor, holds a tutorial class on Monday and Friday evenings in the theatre. At this class important subjects, such as hæmorrhage, hernia, retention of urine, and tracheotomy, are taken up; clinical methods, surgical appliances, and instruments, are shown and explained, and as far as possible their application demonstrated. When possible, minor operations are performed, and fractures put up before the class.

Professor Annandale has already explained at length in this Journal the method of antiseptic dressing employed in his wards—namely, by irrigation by glycerine and carbolic acid, and dressing with salycilic wool. Further experience has only made him a more staunch supporter of this method, and the results recently have certainly been exceptionally good. On two occasions the knee-joint has been opened into,—for loose body, and for moveable semi-lunar cartilage,—and each time without the least trouble following. Three cases of amputation through the thigh, and four cases of excision of the knee-joint, have healed by primary union, as have several cases of excision of the mamma, and of tumours. Instead of 1-12, a solution of 1-20 is now used; and it is found to be far less irritating, and quite as efficacious as the stronger solution of carbolic acid in glycerine.

Many cases of great interest have been treated in the wards this session; and a short note of a few of them will not be out of place. Early in the session, a boy of seven years old was admitted, suffering from necrosis of the tibia: it had evidently been a case of acute necrosis, and the child's state on admission was very critical. He was suffering intense pain in the leg, the limb from the knee downwards was much swelled, and there was profuse suppuration from two small sinuses near the ankle. The ankle and knee-joints were unaffected. The boy was extremely emaciated; he had a persistent diarrhœa, and a hectic temperature. Had he been in a fit state for the operation, amputation of the limb would have been performed at once. As it was, he was carefully treated medically, and gradually improved. Some weeks after admission, the Professor exposed the tibia in its whole length, and removed the entire shaft of the bone from epiphysis to epiphysis, leaving the thickened periosteum. The shaft of the bone was bare and necrosed in almost its entire length. The large cavity left was plugged with oiled lint. The immediate effect of the operation was to reduce the temperature, which had previously been continuously elevated, to normal, and the child's progress from then was uninterrupted: he gained strength daily; the large wound slowly filled up, and after ten weeks the patient left the hospital with a perfectly good and strong limb. An interesting point was the great width of the new tibia, formed from the periosteum which had been laid open in order to remove the necrosed bone. The movements at the knee and ankle were perfect, and the child looked well and strong.

Another most interesting and peculiar case was one of compound fracture of the leg, followed by tetanus, for which complication division of the sciatic nerve and amputation through the thigh were successfully performed. The patient was a young man of twenty-three; and an interesting point in his history is, that he had always been very quiet and retiring, and much given to "brown study." From the first, a difficulty was found in keeping the broken bones in position; but the wound remained quite aseptic, and almost free of inflammation. The patient had several fits of wild delirium, with elevated temperature, followed by obstinate and complete silence and quiescence; but on the twelfth day after admission, at 4 A.M., there was noticed some slight stiffness of the muscles of the back of the neck; to which symptoms were added, a few hours later, slight trismus. At four o'clock in the afternoon, whilst the patient was being given a drink, he suddenly complained of choking and inability to swallow. The jaws became tightly clenched, and the whole body was thrown into rigid spasm in the position of opisthotonos. The muscles of respiration were unaffected. Chloroform was given, and it was only when the patient was deeply under its influence that the spasm relaxed. Professor Annandale, who had been sent for, at once decided to remove the cause of irritation. The patient was put under chloroform, the great sciatic nerve exposed at the lower border of the glutens maximus; and a portion of the nerve, about half-an-inch in length, removed. The limb was then amputated just above the knee. During the operation, the body was several times thrown into rigid spasms. After the operation, the patient had one violent spasm, the body being thrown into the position of emprosthotonos. Sulphate of eserine, gr. ½, was given by the mouth after the spasm had relaxed under chloroform. From this time onwards no more tetanic spasms occurred, and the patient progressed favourably for four or five days, spoke rationally, and took notice of what was going on round him. He then, however, relapsed into a state of obstinate and complete silence, from which he has never recovered. He took little or no notice of what went on round him, swallowed his food mechanically when it was put into his mouth; and, though he got plenty of nourishment and stimulants, lost flesh rapidly. Fæces and urine were passed into the bed. The stump and wound in the back of the thigh healed kindly and well, and the patient was in the above condition when removed for home by his friends, ten weeks after the operation. This then was a very marked case of trumatic tetanus, which was cured by the early removal of the cause of irritation.

A third case of great interest may be briefly referred to, as illustrating a rare accident which may occur in reducing a dislocation of the shoulder—viz., rupture of a blood-vessel. A man, aged fifty-four, was admitted on 4th January, suffering from a subcoracoid dislocation of the head of the humerus; he was very weak and faint, the arm was much swelled and extremely painful, and after two unsuccessful attempts at reduction by manipulation, the patient was put to bed, and hot fomentations applied till Professor Annandale saw him next day. Chloroform was then given, and after another unsuccessful attempt at reduction by manipulation, the displacement was easily reduced by the method of "heel on the acromion." An hour after the reduction a large swelling was noticed over the upper part of the chest and upper arm. This swelling was very tense and fluctuated distinctly. Ergotin was given, ice applied locally, and the swelling rapidly subsided. Three days later the swelling again appeared, and it continued to diminish and again become tense till the 23rd. On that date Professor Annandale cut into the swelling below the clavicle, and cleared out about ten ounces of blood-clot from a large cavity beneath the pectoralis major. No bleeding point could be seen; but, after careful search, fresh blood was seen welling up from the axilla through an opening in the deep fascia. The finger passed through this opening into another large cavity, filled with blood-clot, and extending half-way down the upper arm. With a probe-pointed knife Professor Annandale rapidly laid open the cavity, cleared out the clots, and discovered the anterior circumflex artery spouting beneath the deltoid. The vessel had ruptured about an inch from its origin. The bleeding point was secured by a silk ligature. The wound, which measured about 12 inches in length, healed very well; and, so far as the effects of the operation go, the patient is now convalescent. There still remains some paralysis of the forearm and hand, probably due to the long-continued pressure of the blood-clots on the axillary nerves. This is, however, gradually passing off. The accident was a most unfortunate one, but the operation performed for its cure most brilliant, and its result very satisfactory.

A very interesting condition was discovered in the body of a patient, who died from chest complications after a compound fracture of the tenth left rib. Impacted in the spleen was a fragment of the broken rib, about three-quarters of an inch long, and of irregular shape; and there was no sign of hæmorrhage either into the abdominal cavity or into the tissues of the spleen round the piece of bone.

Frank Godfrey,
*Resident Surgeon.*

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## THE EDINBURGH UNIVERSITY TERCENTENARY.

THE following is the Programme for the Tercentenary Celebration, published by the Senatus Academicus:—

### Provisional Programme.

*Tuesday*, 15*th April.*

1. Reception of Guests, Members of the University, and others, by the Lord Provost, Magistrates, and Town Council, in the Museum of Science and Art, 9 p.m.

*Wednesday*, 16*th April.*

2. Commemoration Service in St. Giles's, at 11 a.m.
3. Luncheon in the University New Buildings, by invitation of the Principal and the Faculty of Medicine, at 1 p.m.

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4. Students' Dramatic Entertainment, in the Lyceum Theatre, at 3 P.M.

5. Organ Recital, by Professor Sir Herbert Oakeley, in the Music-Class Room, at 4 P.M.

6. Conversazione, in the Hall of the University Library, 9 P.M.

7. Students' Ball, in the Assembly Rooms, at 10 P.M.

*Thursday*, 17*th April.*

8. Honorary Graduation Ceremonial, in the United Presbyterian Hall, at 11 A.M.

9. Luncheon, by invitation of the President and Fellows of the Royal College of Physicians, at 1.30 P.M.

10. Reception by the Dean and Faculty of Advocates, in the Advocates' Library, at 3 P.M.

11. Reception by the Royal Medical Society, Melbourne Place, at 3 P.M.

12. Tercentenary Banquet, Drill Hall, at 6.30 P.M.

*Friday*, 18*th April.*

13. Breakfast by invitation of the President and Fellows of the Royal College of Surgeons, at 9 A.M.

Visits to Holyrood Palace, the Castle, University Buildings, &c., and Excursions.

14. Students' Concert in the Music Hall, at 2 P.M.

Illumination in Princes Street, and Fireworks on Castle Esplanade, 9 to 10.30 P.M.

Torchlight Procession, 10.30 P.M.

NOTE.—Every guest of the University will receive tickets admitting him to Nos. 1, 2, 4, 5, 6, 8, 10, 12, and 14.

Every member of General Council who has intimated his intention to be present at the Festival will receive tickets for Nos. 1, 2, 6, and 8. Subscribers will also receive a separate ticket for No. 12.

A limited number of tickets for ladies, students, and others, for Nos. 2, 6, and 8, will be issued by the University; and for Nos. 1 and 10 by the Town Council and Faculty of Advocates respectively. Ladies will also be admitted to the gallery of the banquet-room by special invitation of the University.

Admission to Nos. 3, 4 (except in the case of guests, as stated above), 7, and 11 will be by special invitation only. For Nos. 4 and 7 the Executive Committee of the Students' Representative Council will issue a limited number of tickets to members of the University at rates which may be learned at the office of the Council. Tickets for Nos. 5 and 14 are obtainable from the Professor of Music.

Among the distinguished visitors expected we may mention the following. Those marked with asterisks are to receive honorary degrees:—Sir Risdon Bennett, M.D., LL.D., F.R.C.P.L., F.R.S., Royal College of Physicians, London; John Syer Bristowe, M.D., F.R.C.P., F.R.S., Senior Physician and Joint Lecturer on Medicine, St. Thomas's Hospital, London; William B. Carpenter, C.B., M.D., LL.D., F.R.S., University of London; *John Eric Erichsen, F.R.S., Surgeon Extraordinary to the Queen, Emeritus Professor of Surgery and Clinical Surgery, University College, London, and Consulting Surgeon to University College Hospital, University College, London; *Rev. Samuel Haughton, M.D., D.C.L. (Oxon), LL.D. (Cantab), F.R.S., Senior Fellow, and Senior Lecturer in the College, Trinity College, Dublin; Sir John

Lubbock, Bart. (M.P.), D.C.L., LL.D., F.R.S., one of the Trustees, British Museum, London; *John Marshall, F.R.S., President of the College, Royal College of Surgeons, London; Louis Pasteur, member of the Academie d'Abbadie Aut, Academie des Sciences; Edward Henry Sieveking, M.D. F.S.A., F.R.C.P.L., Physician Extraordinary to Her Majesty the Queen, Physician in Ordinary to His Royal Highness the Prince of Wales, Edinburgh University Club of London; Rudolf Virchow, M.D., Professor of Pathology, Royal Academy of Science, Berlin; *Professor Victor Carus, Leipsic; *Sir Andrew Clark, Bart., M.D., LL.D., 16 Cavendish Square, London, W.; *Professor Donders, F.R.S.E., Utrecht, Holland; *Dr. E. Haeckel, Professor of Zoology, University, Jena; *Professor H. von Helmholtz, F.R.S.E., Berlin; *Sir William Jenner, Bart., K.C.B., F.R,S., 63 Brook Street, Grosvenor Square, London, W.; *Professor A. von Kolliker, F.R.S.E., University, Wurzburg; Professor Acland, C.B., LL.D., F.R.S., University, Oxford; Sir Joseph Fayrer, M.D., F.R.S., K.C.S.I., LL.D., London; Sir Joseph Lister, Bart., LL.D., F.R.S., 12 Park Crescent, Portland Place, London; G. E. Paget, LL.D., K.B., F.R.S., Caius College, Cambridge; the Right Hon. Sir Lyon Playfair, K.C.B., LL.D., F.R.S.

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## *CORRESPONDENCE.*

### THE PROPOSED EDINBURGH UNIVERSITY UNION.

OUR Scottish Universities differ from those of England in many ways, but in none more marked than this,—that here the conditions of undergraduate life are opposed to constant intercourse between the men, while there they are all in favour of it. The freshman at Oxford or Cambridge soon finds himself possessed of a large circle of acquaintance; and, if he is worth anything, he makes before long some genuine friendships. He meets his fellows constantly, not only in chapel and at lectures, but at the dinner table, at debating clubs, and in private rooms; and he learns to think and to argue, to know his own mind and study other people's, and to take an interest in a hundred questions of art, politics, science, and literature, which are never touched on in the work prescribed for his degree. When he leaves College after acquiring the academic stamp, he is not necessarily a profound scholar, but he has an educational equipment which is sure to be of good service in any walk of life; and that part of it which he has derived from social intercourse with his fellow-students is by no means the least permanent or the least real. It is in this kind of education that our Scottish Universities are deficient, and many regard the defect as most urgently in need of remedy. In Edinburgh the cause of complaint is not that there is no existing provision for corporate life among the students, for we have a number of clubs and societies; but it is that these do not form a sufficiently recognised part of the University organisation, and that the mechanism for working them is wholly inefficient.

There is not the slightest doubt that organised intercourse among a body of students causes an intellectual stir, with manifold beneficial results to the whole, the tendency being for the greater minds to influence the less, rather than the less the greater. Among the more than three thousand young men who matriculate annually at Edinburgh, most of whom are entering on some one of the learned professions, there are certainly some who have it in them to become a few years later distinguished men; and may there not even be a young Scott or a young Carlyle among them? In Edinburgh University, as it is at present constituted, there might be a score of such men without any, or more than a very few, of their fellow-students being benefited one iota by the fact: if it were as it should be, they would be known to all, and would do for the University at twenty what twenty years later they would do for the world. Who knows what the personal influence of the best might not do in the way of improving the average, if only our system admitted of personal influence being exerted efficiently? New schools of thought have before now sprung from undergraduate arguments. The brilliant coterie that originated the *Edinburgh Review*, and startled the worlds of politics and letters, was first formed in the "Speculative Society," concerning which Lord Cockburn says, in his "Life of Jeffrey":—"It has scarcely ever fallen to my lot to hear three better speeches than three I heard in that place,—one on 'National Character,' by Jeffrey; one on 'The Immortality of the Soul,' by Horner; and one on 'The Power of Russia,' by Brougham. It was here that his [Jeffrey's] feeling about the fewness of his friends ceased. His first acquaintance with the persons I have named, and many others of the best friendships of his life, arose in this Society." The "Speculative" is a strictly limited Society. Had the University of that day had its Union, would not the brilliant influence of this famous coterie have spread among the whole body of students and stimulated them to good work of all kinds?

The feeling that student life in Edinburgh is far from what it might be is by no means a new one. Thirty years ago, Mr. (not yet Professor) James Lorimer, in his work on "The Universities of Scotland, Past, Present, and Possible," wrote:—"It will not, we believe, be denied by any who are acquainted with the working of the Scottish Universities that one of their leading defects is the total isolation in which they leave the student the moment he quits the lecture-room." Something, a little, has been done since then towards improving matters; but practically the present remains the same as the past, and the possible has still to be accomplished. It is probable that the step recently taken by the students in electing a Council to speak and act for them will prove the beginning of a change in the right direction; for it is the united action of the whole body, and proves that the desire for corporate existence is present among them. The aim of this Council—not only of the present one, but of its successors, for it is to be elected annually—must be to foster the *esprit de corps* of the students, to teach them to be proud of the name and to maintain its dignity, and to provide for them, so far as it can, the mechanism for social and intellectual union, without which such *esprit de corps* is impossible.

Now, the one essential piece of mechanism is a building which shall be devoted wholly to the purposes of student life; for it is the absolute want of accommodation for such purposes in the University buildings proper that accounts for the state of affairs described by Professor Lorimer. There is no common room for students to meet in, talk in, or read the papers in; there is no refreshment and no smoking room; and there is no room at the disposal of the various societies, except a small one which they may not use during the day. So much money has recently been subscribed by the public towards completing the necessary lecture-rooms and laboratories, that the students feel some confidence in appealing for aid in providing a building that should benefit the University to, perhaps, as great an extent, though in a different way. If the £12,000 which have been asked for are obtained, then many distinct advantages may be expected from the possession of the building, with its large and small debating rooms, its reading and smoking rooms, its committee rooms, and its gymnasium. There being no rent to pay, and affairs being conducted on more economical principles than they are at the Oxford and Cambridge Unions, the annual subscription may be made sufficiently small for every student in the University to afford it. Not only will these obtain increased intellectual vigour from associating and debating with their fellows, but they will be thrown into contact with many of the younger graduates, who will like to keep up their connection with the Union after leaving College. Many lasting friendships will be formed, and many pleasant social hours will be passed within its walls. Young students, having a comfortable place to spend their time in when not at work, will be less tempted by those undesirable haunts which are now their only resort. And, finally, the possession of a good gymnasium will make athletics more popular, and improve the physique of the students. Thus we may confidently anticipate that, when the Edinburgh University Union becomes an accomplished fact, intellectual, social, moral, and physical advantages will accrue to our students, and hence to the country itself, of which they form so important a part.

ORME MASSON.

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## *REVIEW.*

**Clinical Lectures on Mental Diseases.** By T. S. CLOUSTON, M.D. J. & A. Churchill, London, 1883.

THIS is a welcome and valuable addition to alienistic literature. Treating the subject from the clinical point of view, and illustrating it by the records of numerous cases, Dr. Clouston's book is thoroughly practical, and will well repay careful study.

Attempts have been made by different writers to classify mental disorders according to their psychological or patho-etiological relationships,—that is, with reference to those elements of healthy mind of which they are the diseased manifestations, or to the pathological and causal conditions which are associated with them. But our knowledge of healthy mind is still in many ways so indefinite, and our knowledge of the pathogenesis and pathology of disordered mind is still so inadequate and vague, that classifications founded upon them have many shortcomings; and in practice it is usual to use, first, a classification which is purely symptomatological. Such a classification is apt to be unscientific, because it deals with symptoms only, and not with the whole natural history of the disease; but it is at present a necessity in the study of mental disorders. Dr. Clouston, therefore, takes up, in the first place, the consideration of mental diseases grouped symptomatologically; and he arranges them under the heads of—(1) states of mental depression; (2) states of mental exaltation; (3) states of alternation, periodicity, and relapse of mental disease; (4) states of fixed and limited delusions; (5) states of mental enfeeblement; (6) states of mental stupor; and (7) states of defective mental inhibition. The first, second, fourth, and fifth of these groups correspond respectively to the old terms of melancholia, mania, monomania, and dementia (including amentia or congenital defect); and under them Dr. Clouston describes the leading varieties of these forms of insanity. The third group comprises the cases of *folie circulaire*, which are often classed as a sub-division of mania, but which have clinical features sufficiently distinct and well-marked to entitle them to be placed in a group by themselves.

The sixth group is to a certain extent a new one, for conditions of stupor, though fully recognised and described, have not usually been considered as ranking in a separate class. But the class is a well-marked one, and presents very distinctive characteristics. Acute primary dementia (which, as Dr. Clouston points out, would be better described by Dr. Newington's term of anergic stupor) is properly referred to this class, for both clinically and pathologically, it is quite distinct from the chronic dementias of the fifth group. Melancholia attonita, or *mélancolie avec stupeur*, is also placed by Dr. Clouston in this sixth group, though this is probably more open to question. It is usually regarded as essentially a form of melancholia, and is often described as being the result of an over-mastering melancholic delusion; and in this view it ought properly to come under the melancholias. Dr. Clouston, however, holds that the morbid process is something more than this, and that the melancholic delusion is a symptom only, and not the cause of the melancholic stupor; and he supports his view by reference to cases in which the features of melancholic stupor were found well-marked at one stage, and the features of anergic stupor well-marked at another stage, of the disease in the same patient.

The group of states of defective mental inhibition includes the various forms of impulsive insanity and moral insanity. The question of impulsive insanity is both interesting and important, in that it so frequently gives rise to grave conflict of medical and legal opinion in the law courts; and the existence of such a form of insanity is often doubted or denied. Dr. Clouston gives the weight of his opinion in favour of the occurrence of impulsive insanity, and quotes various instances which he has seen of it.

After the symptomatological classification, Dr. Clouston gives an etiological classification of mental diseases; and in this he follows the system laid down by Dr. Skae. This includes those forms of insanity which have a distinctly marked pathology, such as general paralysis; and endeavours, in regard to the other varieties of insanity, to take causes into account, and to trace the influence which the constitutional or general bodily condition has on the mental manifestations. Thus adolescence and the other great physiological epochs of life, pregnancy and the puerperal state, alcoholism, syphilis, phthisis, &c., are recognised as important factors in influencing the mental symptoms, and the different clinical varieties found in connection with these conditions are described. The connection between phthisis and insanity has been elucidated mainly by Dr. Clouston's own investigations.

The last chapter of the book gives hints as to the home treatment of insane cases, the signing of medical certificates, the statutory provision for the care and administration of the property of lunatics, the giving of medical evidence regarding insanity in the law courts, testamentary capacity, the detection of feigned insanity, &c.

The method in these lectures is interesting and suggestive. As there is no hard and fast line between sanity and insanity, Dr. Clouston traces first the variations which may take place in mental conditions while they are regarded as still normal and healthy; and then shows how these, when prolonged or excessive, pass into abnormal states, and constitute insanity. The descriptions of the different forms of mental disorder are concise, clear, and forcible; and the cases given in illustration are narrated very graphically. Especially interesting is the section on simple mania, in which Dr. Clouston shows how certain alterations in character, leading to complete change in habits and mode of life, are in reality often an expression of mental derangement, and ought to be regarded as insanity by the medical man, though not recognised as such by the layman or by the legal observer. Dr. Clouston insists strongly on the part which inherited brain-instability plays in the development of insanity, and on the importance of properly directed training and education in early life in counteracting this instability.

These lectures embody the results of an exceptionally extensive experience among the insane by an able observer; and they will be found valuable not only by the student and by the general practitioner, but also as a book of reference by those whose work lies specially among the insane.

A. R. Turnbull.

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## REPORT ON PATHOLOGY.

1. **Quincke.**—Beiträge zur Lehre vom Icterus. (Contributions to the subject of Jaundice.) *Virchow's Arch.*, vol. xcv. p. 125.
2. **Thoma.**—Ueber die Abhängigkeit der Bindegewebsneubildung in der Arterienintima von den mechanischen Bedingungen des Blutumlaufes. (The Relation of Connective-Tissue Formation in the Intima of Arteries, to the Mechanical Conditions of the Blood-stream.) *Virchow's Archiv.*, Feb. 1884. (Second Article: "The Condition of Arteries in Amputation Stumps.")
3. **Minkowski.**—Primäre Seitenstrangsklerose nach Lues. (Primary Sclerosis of the Lateral Columns of the Cord after Syphilis). *Deutsches Archives*, vol. xxxiv. p. 433.
4. **Curschmann and Eisenlohr.**—Zur Pathologie und Pathologischen Anatomie der Neuritis und des Herpes Zoster. (On the Pathology and Pathological Anatomy of Neuritis and of Herpes Zoster.) *Deutsches Arch.* vol. xxxiv. p. 409.

1. **Quincke on Jaundice.**—The difficulty in certain cases of jaundice of detecting clinically or anatomically any obstruction to the outflow of bile, led Gubler to separate cases of jaundice into two classes—(1) the ordinary jaundice by obstruction, which he named *ictère biliphéique;* and (2) the jaundice where no obstruction could be detected, *ictère hémaphéique.* His scholar, Dreyfuss-Brissac, subsequently studied the subject more completely, and he gave the following as the causes of this latter form of jaundice—(1) increased destruction of red blood-corpuscles, brought about by fevers of various kinds, poisons, &c.; (2) interference with the function of the liver, by reason of organic changes (cancer, cirrhosis, &c.), circulatory changes (heart disease), or nervous changes (lead colic). The symptoms of this *ictère hémaphéique* he found to differ from those of ordinary jaundice in the following points. The discoloration of the skin was less marked; there was no slowing of the pulse or itchiness of skin; and in the urine, instead of bile-pigment, there appeared a substance which he named *hémaphéin.* It appears to be a little doubtful what Dreyfuss-Brissac meant by this hémaphéin. In some of its qualities it closely resembled urobilin, which Gerhardt has stated to be present in such cases of jaundice. For a considerable time Quincke has examined all cases of jaundice which he met with, and has come to the conclusion that the assumption of Gubler and of Gerhardt is wrong, and that these cases of jaundice in which they supposed the pigment to be hémaphéin or urobilin, are nothing else than slighter grades of biliary jaundice. The cases which Quincke thus examined were catarrhal

jaundice, jaundice of hepatic currhosis, of pneumonia, of valvular heart disease; of phosphorous poisoning, and icterus neonatarum.

The first point which he endeavoured to determine was whether the jaundiced skin, when examined with the spectroscope, gave the characteristic spectrum of urobilin—an absorption band between the lines *b* and *f*—and this was not found to be the case even in cases in which the urine contained urobilin.

In all cases he examined, with the greatest care, for the presence of urobilin and of bile-pigments, not only the urine but also serous fluids obtained by puncture from the pleural, peritoneal, and pericardial sacs, and from blisters. The results so obtained will be best understood by examining the following table:—

| SKIN. | SERUM. | URINE. | | FÆCES. |
|---|---|---|---|---|
| 1. Very slightly yellow. | Bile-pigment, O. | Bile-pigment, O. | Urobilin, O; or very little. | Colour normal. |
| 2. Slightly yellow. | Bile-pigment, +. | Bile-pigment, O. | Urobilin, +. | Coloured. |
| 3. Yellow. | Bile-pigment, +. | Bile-pigment, +. | Urobilin, +. | Paler than normal. |
| 4. Very yellow. | Bile-pigment, +. | Bile-pigment, +. | Urobilin, + or O. | Colourless, or exceedingly pale. |

*Note.*—+ = Presence; O = Absence of the substance in each case.

It will thus be seen that in the slighter degrees of jaundice (the cases examined were pneumonia and valvular heart disease) the skin and conjunctivæ were tinged yellow, but that neither in the urine nor in the serum was bile-pigment present, and urobilin was either absent or only present in traces. When the jaundice was somewhat deeper the bile-pigment was found in the serum, but the urine only contained urobilin. Only when the jaundice attained to a well marked degree did the bile-pigment appear in the urine; but, at the same time, urobilin was also to be found there. In cases in which the skin was very deeply pigmented, and the fæces were completely free from colour, the urine contained large quantities of bile-pigment; but urobilin was only present in very small quantity, and where the bile was completely cut off from the intestines no urobilin at all was discoverable in the urine.

These observations lead to the following conclusion: If, in consequence of obstruction, a considerable quantity of bile-pigment passes into the blood-serum, a part of it remains in the tissues, a second part passes unchanged into the urine, and a third part becomes transformed into urobilin. How and where this transformation takes place has not been as yet clearly shown, and these observations of Quincke, which are otherwise of great value, do not throw much light on that intricate point.

J. GRAHAM BROWN.

**2. Thoma on the Relation of Connective-Tissue Formation in the Intima of Arteries, to the Mechanical Conditions of the Blood-stream.**—In the first communication by Thoma on this subject, several months ago, he described the appearances of the aortic intima at various stages of extra-uterine life, comparing them with those found in the fœtus, and showed that there was a considerable increase in the amount of sub-endothelial tissue in the parts of the aorta where there must have been a change in the blood-stream, owing to a large part of the area which the aorta supplied being cut off by the closure of the two umbilical arteries; and from this he argued that this formation of connective tissue in the intima must be due in some way to slowing of the blood-stream in the aorta, its lumen being too great for the amount of blood passing through it.

He has now extended his investigations to the arteries in stumps after amputation, where obviously the conditions are somewhat similar, though on a smaller scale, to those in the aorta after closure of the umbilical arteries.

In commenting on the literature of this subject, he remarks that we may disregard the clot which forms in the artery as being of no importance, although much stress was laid upon it by older writers, and he agrees with most modern investigators, especially Verneuil and Segond. The large majority of recorded cases show that the vessels of the shortened limb are narrower than those of the sound side, this narrowing involving the principal vessels, and also those branches which are involved in the incision.

He was able to examine the arteries of stumps in eight cases, and in five of these he also secured the arteries on the corresponding limb of the opposite side. He hardened carefully, and cut pieces imbedded in celluloid, taking care to cut his sections at distances carefully measured from the point of ligature, and was also careful in examining sections of the arteries on the opposite side, to get them as nearly as possible at the same level. In examining the specimens, he made measurements of the lumens of the vessels, and of the thickness of the intima and media.

For a few millimeters above the ligature he found the lumen absent,—up to the level, in fact, of the first branch,—and much contracted for a considerable distance further. The intima was thickened, and this thickening was noticeable for over 100 mm.; the media was very considerably thinned. In one case, the thickening of the intima was slight, but the lumen was small, owing to the contraction and atrophy of the media.

He considers that, after ligature in an amputation, several changes take place in the artery above. First, contraction of the media; this contraction narrowing the lumen of the vessel, and so compensating more or less the disproportion of lumen to blood-stream. Where this contraction is insufficient, a compensatory endarteritis sets in, leading to thickening of the intima and a still further contraction of the lumen. The structure of this thickened intima is the same as that of the thickened aortic intima—that is, it consists of an almost hyaline or slightly fibrillated matrix, containing numerous flat branching cells, the flat surfaces of which are parallel to the inner surface of the vessel, and, in addition, a number of lymphoid cells containing usually more than one nucleus. Where the contraction of the media is sufficient, of course, this compensatory endarteritis does not take place, and this will account for the cases in which the lumen is found narrowed and the intima not thickened. The final change that occurs is atrophy of the muscular fibres in the media. He mentions as an important fact, that, although the thickening of the intima and the thinning of the media are irregular, yet almost always a regular lumen results, the greatest thickening of the intima occurring where the media is most thinned. Numerous capillaries were found in the intima for a short distance above the ligature, and in the same position increased vascularity of the media; but further away the vascularity gradually decreased, the greater part of the thickened intima containing no vessels.

He was unable to secure arteries, ligatured in their continuity, from human subjects, so had to experiment on dogs. In this case the mechanical change in the blood-stream is much less, or, at least, only temporary, owing to the rapid establishment of a collateral circulation; and he found, as he expected to find, that the changes in the intima were much less marked above the nearest branches. In examining the arteries of these dogs, he had occasion to examine their aortæ, and he found that the changes he had described as occurring in the intima in the human subject were practically absent in that of the dog, the intima of the descending thoracic aorta having the same thinness as that of the arch of the aorta, whose lumen was never too great for the blood-stream passing through it, owing to the closure of the ductus arteriosus taking place almost simultaneously with the closure of the umbilical arteries. Thoma suggests that this difference between the aortic intima in man and in the dog is due to the much greater contractility of the aorta in the latter, this contraction producing compensation by regulating the size of the lumen to the blood-current. He is still unable to account for these changes, but thinks that they are due in some way to a slowing of the blood-stream in the vessels when a great part of the area they supply is suddenly cut off.

The theory advanced by Professor Hamilton at the discussion on "Albuminuria," which took place lately in Glasgow, might be of service here; for, granting a slight difference in the specific gravity of the corpuscular and fluid elements of the blood, the corpuscles would be more apt to come in contact with the wall of a large vessel where the current was slowed, more especially where eddies existed, and these one would expect to find where a current suddenly meets with resistance; and this resistance is encountered in the ligatured arteries of a stump, and in the aorta, when the placental circulation is removed and the umbilical arteries closed.

CHARLES KENNEDY.

**3. Minkowski on Sclerosis of the Lateral Columns of the Cord after Syphilis.**—In this article there is narrated a case which possesses unusual interest, both from the point of view of etiology and from that of therapeutics. The patient was a girl of nineteen, in whom some time after a well-marked syphilitic affection, there became developed all the symptoms of spastic spinal paralysis, these consisting in motor weakness of lower limbs amounting to paresis, a spastic walk, great increase of the tendon reflexes, no interference with sensibility, normal functions of bladder and of rectum, no trophic changes, no ataxia. These symptoms assumed a very well-marked character, but gradually subsided under vigorous antisyphilitic treatment (mercurial inunction) and ultimately disappeared completely. The patient ultimately died of syphilitic lung affection without any spinal symptoms again showing themselves. On post-mortem examination, there was found a symmetrical primary lateral sclerosis in the cord, which involved the lateral pyramidal and the lateral cerebellar tracts.

It is a very remarkable fact, that the symptoms which such a lesion produces were entirely removed by means of treatment, and specially so, that though these symptoms had not been present for a considerable time before death took place, there should then have been found so extensive anatomical changes.

**4. Curschmann and Eisenlohr on Neuritis and Herpes Zoster.**—The relation of herpes zoster to disease of the nervous system, and especially to neuritis, is generally recognised, but the view which was held for some time that the herpes was due to an affection of the spinal ganglia must be regarded as too one-sided. Even in cases in which these ganglia have been found to be diseased, there is no evidence that the affection had its primary seat there, and Curschmann and Eisenlohr believe that it is secondary to neuritis. They have in their possession evidence which points strongly to a peripheral origin of herpes zoster.

The authors had an opportunity of observing a case in which there was a close relation between herpes zoster and a unilateral *perineuritis acuta nodosa*. The patient was a man of seventy, in whom the attack of herpes zoster was severe, and after the eruption had passed away there came to be felt over the neuralgic part small knots, which were taken to be due to swellings on various cutaneous nerves, and which became apparent over the one side of the thorax, and over one arm. These small tumours were exceedingly painful on pressure, but there was no other affection of sensibility. The motor, vaso-motor, and trophic functions remained normal. Several of these tumours were excised, and were found to be connected with the cutaneous nerves. When examined with the microscope it was apparent that the lesion was chiefly in connection with the vessels of the nerve sheaths—hæmorrhages, extravasation of white corpuscles, swelling of the cellular tissue elements—and that the nervous tissues themselves were unaffected; in short, that there was a true perineuritis acuta nodosum. Sometime subsequently the patient died of some pulmonary complication, and on post-mortem examination it was found that all the perineuritic swellings had disappeared. The spinal ganglia and spinal cord were perfectly healthy.

Another similar case is narrated, in which a severe attack of herpes zoster was followed by perineuritic tumours on the lines of the cutaneous nerves.

These observations appear to show clearly that there are peculiar forms of neuritis which are characterised by an outbreak of herpetic eruption, and in which there is a subsequent development of perineuritic nodules.

J. Graham Brown.

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## REPORT ON THERAPEUTICS.

1. **Pellacani.**—Zur Pharmakologie der Camphergruppe. (On the Pharmacology of the Group of Camphors.) *Archiv. für exp. Pathologie und Pharmakologie*, vol. xvii. p. 369.
2. **Sawyer.**—Remarks on the Therapeutic Uses of some Improved Oleates. *Birmingham Medical Review*, Feb. 1884.
3. **Glaevecke.** — Ueber Subcutane Eiseninjectionen. (On Subcutaneous Injection of Iron.) *Archiv. für exp. Pathologie und Pharmathologie*, vol. xvii. p. 466.
4. **Shingleton Smith.**—Note on the Utility of Iodoform in the Treatment of Phthisis, and its Occasional Toxic Effect. *Bristol Medico-Chirurgical Journal*, Dec. 1883.
5. **Cahn.**—Acute Schwefelwasserstoffvergiftung mit längerem Latenzstadium und sehr heftigen Intestinalen Symptomen. (Acute Poisoning with Sulphuretted Hydrogen, with long Latent Period and severe Intestinal Symptoms.) *Deutsches Archiv.*, vol. xxxiv., p. 121.
6. **Strübing.**—Zur Lehre von Husten. (On Cough.) *Wien. Med. Presse*, 1883, No. x. *Fortschritte der Med.*, 15th Feb. 1884.

**1. Pellacani on the Actions of the Camphor Group.**—This article contains the result of a series of experiments upon various members of the group of substances which are closely allied to camphor. Ever since the observations of Schmiedeberg and Meyer, it has been recognised that when camphor is administered to animals it becomes oxidised into an oxycamphor—camphorol; and to the action of this substance Pellacani first directs attention. In order to obtain a sufficient quantity of camphorol for the purposes of experiment, he fed dogs daily with 4-6 grammes of camphor, and collected their urine, from which he was able to obtain camphorol in considerable quantity, by precipitating with basic acetate of lead and ammonia, decomposing the precipitate by means of sulphuretted hydrogen, filtering, and evaporating. The fluid was then allowed to stand for some weeks at a temperature of 60°C., along with hydrochloric acid, and finally the camphorol was extracted by means of ether. It crystallised rapidly as a snow-white substance, and dissolved in water to the amount of 6-7 in 100. The odour was quite peculiar, and differed from that of camphor.

*Camphorol.*—The physiological action of camphorol was found to resemble closely that of camphor, but to be more powerful. In the frog the first sign of the action of camphorol is the cessation of spontaneous and reflex movements and of the respiration. While stimulation of neither spinal cord nor motor-nerve produces any muscular contraction, the muscles at once contract when the stimulus is applied directly to them. In short, camphorol acts in this respect like curara, paralysing the peripheral motor-nerve terminations. In rabbits, doses of 1 gramme produce dangerous symptoms. The chief nervous symptoms consisted of epileptic convulsions, which were separated by periods of cessation of different length according to the quantity of the drug administered. Even in very small doses, camphorol causes an increase of the blood-pressure which is not continuous by rhythmical like that produced by the action of camphor. The action of the heart diminished in rapidity while each individual contraction gained in power. Pellacani shows reason for believing that this action of camphorol is the result of direct action upon the heart muscle, just as in the case of anilin-sulphate, phenylglycocoll, and cumarin.

*Borneol and Menthol.*—These members of the camphor group cause paralysis of the central nervous system, as well as of the peripheral nerve-terminations. In rabbits there is produced a gradually increasing paralysis. With small doses only the voluntary movements are affected, with larger quantities the sensation and reflex movements are abolished; the cerebral functions are the last to be affected. The action of borneol and menthol thus differs materially from that of other members of the camphor group. Their chief action is upon the spinal cord and medulla oblongata, and as they depress the sensation, reflexes, and the central nervous functions, they must be regarded as much more truly sedative than other camphors. And as menthol, in particular, has no harmful action upon the circulatory system, and is well born by animals, Pellacani recommends it as suitable for extensive clinical use.

**2. Sawyer on the Therapeutic Uses of some Improved Oleates.**—The new oleates which Dr. Sawyer recommends are obtained by the double decomposition of sodium oleate with solutions of neutral salts, the sodium oleate being obtained by the saponification of oleic acid with a solution of sodium-hydrate. A solution of the sodium oleate in eight parts of water is precipitated by means of a neutral salt, and the precipitate washed and dried is the oleate in question. Dr. Sawyer has examined and tested, in hospital and private practice, oleates of lead, zinc, and copper, prepared after the above method, and finds that, compared with the older preparations, these new oleates present the great advantage that they can be used as dusting-powders as well as in the form of ointments, so that they become available in those affections of the skin in which greasy applications are not suitable. It is well-known to the profession that medicaments applied as dusting-powders are preferable to ointments in many of the acuter forms of discharging affections of the skin. Zinc oleate is a fine, pearl-coloured powder, with a peculiar soft, soapy feel, like powdered French chalk. Lead oleate is a white coloured powder. These oleates may be used alone as a dusting-powder for the skin, or they may be so used when diluted with powdered starch. One drachm, or a drachm and a-half of oleate of zinc or of oleate of lead, mixed with an ounce of petroleum jelly, or with benzoated lard, makes a good ointment, which Dr. Sawyer found efficient in a large number of cases of eczema, in various stages. When a soothing effect is desired, the lead oleate is be to preferred; when an astringent is indicated, the zinc oleate should be chosen. Dr. Shoemaker has introduced oleate of copper as a remedy for ringworm. Dr. Sawyer used it in the form of an ointment, of the strength of one drachm and a-half of the oleate to six drachms and a-half of petroleum jelly, in some mild cases of ringworm, with excellent result. Oleate of zinc, used as a dusting-powder to the skin, is a good remedy in cases of excessive sweating. When used for this purpose, the addition of a little thymol to the oleate, in the proportion of one grain to an ounce, as suggested by Dr. Murrell is an improvement. These various oleates appear suited to take a high place amongst our best local remedies for many cutaneous disorders.

**3. Glaevecke on Subcutaneous Injection of Iron.**—There are few more striking curative effects within the range of therapeutics than those produced by the administration of iron in cases of anæmia; but it will occasionally happen that persons are found who are in great need of iron, and yet who cannot take it in any form by the mouth without such disturbance of digestion as to make its use impossible. To be able to administer iron subcutaneously in such cases would be of the greatest value; but up to the present time the method has practically not been made use of, owing to the difficulty of finding a suitable preparation which should not produce disagreeable local effects. If the results of Glaevecke's experiments recorded in the present article should be confirmed, this difficulty may now be said to be overcome. He first of all experimented on rabbits; and then, having found a preparation of iron which did not produce local irritation, he made use of it on the human subject. The results of both sets of observations are here given.

In order, in the first place, to determine the conditions of absorption, retention, and excretion of iron in the animal organism, he injected subcutaneously in rabbits various preparations of iron in varying doses, examining the urine with great care, and estimating the quantity of iron it contained. Killing the animals after a varying period, he analysed different organs, and determined the iron in each. This series of observations was performed on twenty rabbits, which were killed after periods varying from one hour to fourteen days after the injection of iron. The dose of iron varied from 0·015 to 0·176 gramme (calculated for the metal) per kilogramme of weight. Of all the different organic and inorganic salts of iron, the most suitable was found to be the *ferrum citricum oxydatum*. There was never found to be any inflammatory reaction at the seat of injection, and when the skin at this point was chemically examined twenty-four hours after an injection had been made, only traces of iron were found. The citrate of iron when thrown into the circulation by means of subcutaneous injection is in great measure again excreted. The excretion takes place chiefly through the kidneys, but also to a less extent by the liver. The pancreas, stomach, intestines, and salivary glands do not take part in the excretion of iron. In the urine the iron begins to show itself about half-an-hour after the injection, and the quantity present increases gradually until it reaches its highest point in two to four hours, gradually falling again until in twenty-five hours after the injection all iron has disappeared from the urine. Sometimes so much iron appears in the urine as to give it a brownish colour. By killing the animals at different times it was found that iron could be detected in the kidneys during the time it was passing out by the urine; and even after it had disappeared from the urine, the kidneys still for three days showed traces of the metal. By staining kidney sections with sulphide of ammonium, it was found that the glomeruli were invariably free from iron. The position of the iron in these sections depended upon the length of time the animal had lived after the injection. If this period exceeded nine hours, the iron salt was found to lie only in a few of the convoluted tubules, and was deposited in the lumen, usually in granular form. If, on the contrary, the animal were killed within nine hours of the injection, the iron salt was found not merely to occupy the lumen of the tubules, but also to lie in the epithelial cells in the form of fine granules. It is thus evident that the excretion of iron takes place, not through the glomeruli, but through the epithelium of the convoluted tubules, just as Heidenhain has shown to be the case with regard to indigo-sulphate of soda.

Having thus determined the effects of citrate of iron subcutaneously injected in rabbits, the author proceeded to make use of the same preparation for various patients under his charge. He thus treated ten patients, making in all 250 injections. These injections were best borne when they were made into the muscles of the back or the buttock. The syringe must be washed out with carbolic solution before being used, and the solution of citrate of iron should be clear and not more than a month old. Using these precautions, he found that subcutaneous injections were well borne in the cases in which he made use of them. During the injection, and for a few minutes afterwards, there was felt a slight burning pain, and the point of injection remained tender to pressure for some hours; but in no case was there any infiltration or abscess-formation. In the case of adults, he gave of the citrate of iron 0·1 gramme, and he found that a ten per cent. solution was the most suitable strength. If the dose were larger than this, disagreeable general symptoms followed, such as vomiting and diarrhœa. As was to be expected, the best results were those obtained in cases of chlorosis. In one such patient the hæmoglobin of the blood was only thirty-eight per cent. of the normal quantity before the iron injections were commenced; and after such treatment it rose to eighty-two per cent., the body gaining weight, the menses returning, and a hæmic murmur, which before had been audible, disappearing.

It will be seen from a consideration of this article, that a very important method of treatment is here indicated, and one which deserves an extended trial.

**4. Shingleton Smith on the Use of Iodoform in the Treatment of Phthisis.** — The effects of iodoform in phthisis are illustrated in a case detailed in this article, of a man, æt. 35, suffering from that affection in both lungs. The patient was much emaciated, temperature 101° evening; breath short; pulse quick, weak and dicrotic. Dulness at both apices, front and back; the right dull all the way down, left dull to middle of scapula. Crepitation on coughing, but no cavernous sounds. Sputum contained numerous tuberculous bacilli. On 17th August was ordered iodoform, gr. ij., in pil. every four hours.

This dose was gradually increased until in the middle of September he was taking six grains every four hours. At that date the urine became of very deep red colour on adding nitric acid, and blue on the further addition of starch. Patient had much improved in general condition. Evening temperature 100°; there was no pain, no perspiration, and he had gained strength. This steady improvement continued up to 2nd October, when he complained of increasing weakness, and on the 3rd he vomited several times; he also complained on 5th October, that he could not see at all distinctly, everything appeared to be in a fog; he was not able to read, and imagined that he saw cats and other creatures running about. He had various delusions and hallucinations, and was so giddy and weak that he was obliged to remain in bed. The eyes were examined, but no abnormality was discovered. The urine contained evidences of iodine, but no albumen. Morning temperature was 98·0°; evening temperature was 99·2°.

As it was presumed that the mental phenomena might be due to the iodoform, which the patient had taken in quantity amounting to thirty grains daily from 5th September, this drug was discontinued on 6th October, and mist. quinæ given three times daily. The mental symptoms then abated, but recurred when the administration of iodoform was resumed. In a large number of cases where Dr. Shingleton Smith has watched the effects of iodoform similar results have occurred; the temperature falls, the general strength improves, the expectoration diminishes or ceases entirely, the mischief which was before actively progressive in the lung becomes stationary or retrogressive, the weight of the patient steadily increases, and the bacilli become much less numerous, or may even disappear altogether from the expectoration.

When such benefits as these are being derived, one is naturally inclined to increase the dose of the drug until some physiological toxic results are manifested, and the case further illustrates the physiological limit beyond which it is not safe to go. This limit probably varies much in individual cases. The author has observed indications of iodism in some subjects with one-grain doses of iodoform three times daily, in others there has been a complaint of nausea with a similar dose; but he finds that there are very few patients (and he does not exclude children) who cannot take the drug in the ordinary pill form or in the "McK. and R." gelatin capsuled pill. In no case has he given more than six-grain doses five times daily, but he has frequently administered five-grain doses, and that without any deleterious result. It is to be observed that in this case toxic symptoms did not manifest themselves until nearly two months after the patient commenced the drug, and not till he had steadily continued with the full dose of six grains five times every twenty-four hours for one month. It is further noteworthy that the symptoms commenced to abate immediately on the discontinuance of the drug, and were renewed as the drug was again resumed in one-half the previous dose; they then continued as long as the drug was given, and diminished when it was given up. The persistence of the symptoms is remarkable: the iodoform was finally withheld on 2nd November, but the patient's mental condition and his sight had not been restored to their normal condition three weeks after that date.

The author gives a table of the weight and temperature of this patient, from which it appears that he steadily gained in weight, and his temperature steadily fell during treatment with iodoform. The very peculiar mental symptoms which this patient exhibited should make one, however, very cautious in the administration of iodoform in anything like large doses.

**5. Cahn on Sulphuretted Hydrogen Poisoning in a Chemical Laboratory.**—The instances of poisoning with sulphuretted hydrogen which have been recorded resulted almost always from emanations from sewers. It is therefore difficult to distinguish in them the effects of sulphuretted hydrogen from those of such other gases, as carbonic acid, ammonia, &c., which are also present. On this account the case here recorded by Cahn is of special interest, seeing that sulphuretted hydrogen was the only poison present in the air respired. The patient was a student, who had been perfectly well, and had breakfasted heartily on the morning of the day of his attack. After breakfast he went into the chemical laboratory, and worked for two hours in the sulphuretted hydrogen room, engaged in the precipitation of copper. After complete precipitation had taken place, he proceeded to wash the precipitate by means of a washing flask with saturated sulphuretted hydrogen water. In this way he was exposed to the danger of inhaling, and in the latter operation of swallowing, the sulphuretted hydrogen. At the end of the two hours of work he felt unwell, but was able to walk home. After mid-day, however, he experienced attacks of vertigo and faintness, which were followed by intense cutting pain in the region of the umbilicus, and vomiting. He then became cyanotic, and the pain, reaching an almost unbearable pitch of intensity, he was sent to the hospital, where Dr. Cahn first saw him. On admission the face was grey and sunken, the nose sharp, the pulse very small, but the respiration was unaltered, and there was no particular odour in the breath. The abdomen was exceedingly tender to pressure below the level of the umbilicus. At this stage of the case it was a question whether the symptoms did not result from intestinal obstruction of some sort, but in the course of an hour or two the whole aspect of the case so changed that no doubt could remain but that the symptoms resulted from poisoning with sulphuretted hydrogen. The abdominal pain became much less about 4 P.M., and at the same time the respirations showed some irregularity and became shallow, the cyanosis at the same time increasing. The patient became dull and fell into deeper and deeper stupor, and the breathing assumed the Cheyne-Stokes rhythm. So marked became the respiratory deficiency, that it became necessary to resort to artificial respiration by Faradisation of the phrenic nerve. This treatment was successful in restoring the regularity of the respiration, and the pulse at the same time became stronger; so much so, that after four hours and a-half of stimulation, it was possible to stop the Faradisation, the patient having waked out of his stupor. In the evening the cyanosis completely disappeared, although the breathing remained somewhat irregular. The next day there was a little feverishness, the urine contained ½ $^{\circ}/_{0}$ of sugar but no albumen, blood, bile pigment, or urobilin. On the day following there was present in the urine a large quantity of urobilin, but the sugar had disappeared. Complete recovery followed in a few days.

One of the most interesting points in connection with this case is the glycosuria. Several drugs (carbonic oxide, curara, nitrite of amyl) are also known to have this action, which Cahn believes, in this case, to have been brought about in all probability by the alteration in the interchange of gases caused by the respiratory irregularity. The appearance of urobilin points, no doubt, to considerable destruction of red blood corpuscles.

6. **Strübing on Cough.** — To the recorded cases in which cough could be excited from parts of the body, the irritation of which is not usually followed by that reflex, Strübing here adds another of very considerable interest. The patient in question was a young woman of nineteen, the subject of hysteria, in whom there was well-marked left-sided hyperæsthesia and hyperalgesia of the skin, as well as mastodynia and ovarian neuralgia. In this patient the act of coughing was excited by irritation of the skin generally, and of the nasal mucous-membrane, and by pressure over the mammæ and ovaries; in short, by stimulation of sensory tracts which do not usually lend themselves to the production of this reflex action. The irritability of the cough-centre was so excessive that all stimuli acting on the periphere, and especially upon the hyperæsthetic side, were conducted to that centre, and were there translated into motor impulses, resulting in the act of coughing. This peculiar state of matters is to be explained, according to Strübing, by the history of the case. As the hysteria developed itself, the patient was attacked with intense catarrh of the air-passages, accompanied with severe paroxysms of coughing. The increased reflex irritability which is so marked a symptom of hysteria showed itself in connection with that centre (the cough-centre) which the irritation from the diseased respiratory mucous-membrane sets in action. The treatment of the case, which consisted in depressing the abnormal irritability of the cough-centre by means of such sedatives as the bromides and morphia, and by limiting as far as possible the peripheral stimulus by directing that the clothing should be worn loosely, was successful, and confirmed the theoretical view of the case which Strübing took.

J. GRAHAM BROWN.

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## ORIGINAL ARTICLE.

### "SO-CALLED" CATHETER FEVER.

BY ALEXANDER THOM, JUN., M.D., &c., CRIEFF, N.B.

AFTER the discussion in London on Sir Andrew Clark's paper on Catheter Fever, I wrote a letter to the *Lancet*, with the double object of vindicating the claims of the Edinburgh Medical School and offering an explanation of the phenomena so ably described by the distinguished physician. My letter appeared in the number for 16th February of this year, and begins thus :—

"It appears to me that the majority of those who have taken part in the discussion on Sir Andrew Clark's paper on the above subject have departed from the point at issue. As I understand it, Sir Andrew Clark's contention is that in certain cases where up till that time the several organs had performed their functions in such a manner that the organism as a whole was kept up to a fair standard of health, the use of the catheter has been attended by a feverish condition, and by those symptoms which indicate a 'typhoid state,' and that, consequently, we ought not to allow a patient to enter upon a catheter life without seeing that external circumstances are favourable.

"Now, whatever may have been taught in regard to this elsewhere, I am under the belief that such has long been the accepted teaching in the Edinburgh Medical School. Of this I am certain, that I have been perfectly aware of the fact since my student days, from the teaching of Dr. Heron Watson. This fact, inculcated by Dr. Watson, both in his systematic lectures on surgery and in his wards, made a strong impression upon my mind, and has always been borne in mind in my treatment of such cases, with, I believe, advantage to my patients. Though practitioners in the provinces have not a superfluity of such cases, my experience, such as it is, supports the statement already made."

The discussion which took place at the Edinburgh Medico-Chirurgical Society, and which was fully reported in these columns, justifies my vindication. In the *Lancet's* report of that meeting I find, "The surgeons for the most part seem to be of opinion that death after catheter fever was due to septicæmia." That death is due to septicæmia I grant; but what is the origin of the septicæmia? Is it from absorption of septic matter introduced locally by the catheter as indicated by Professor Chiene? If so, then we have true catheter fever. But I would fain hope that no student, from the Edinburgh School at least, would venture to introduce an instrument without first seeing that the lubrication was, if not "antiseptic," at any rate "aseptic." By the use of antiseptics, danger from this source is reduced to a minimum, and I hardly think it was to such cases that Sir Andrew Clark particularly referred.

In his able contribution to the discussion, Dr. Heron Watson pointed out that in his experience a similar constitutional disturbance has arisen from the passage of a calculus. Under these circumstances the symptoms can hardly be referable to local septic absorption, and seem to me capable of another explanation.

In my Graduation Thesis on the "Relation of Pyrexia to Germs" (Edin. Univ. Aug. 1882), I pointed out that though we are constantly subjected to the attacks of micro-organisms, or the still smaller germs of these which exist constantly in the atmosphere (to say nothing of the germs of infectious disease), the healthy living body has a wonderful power of resisting their influence. Were it not the case that these can gain entrance to the blood, without a breach of cutaneous or mucous surface, whence come the bacteria and micrococci found in the pus of acute abscesses, the bacilli in the blood of pneumonia patients, and so on? Anything which depresses the vital energy or alters the constitution of the blood, is apt to deprive the organism of its power to deal with these influences successfully. Now the nervous system generally is only one factor in maintaining the body in its normal condition of health. Without entering into the question of whether there be a centre for the regulation of temperature, few will doubt, I think, that the nervous system is the power which preserves the balance between the generation and elimination of heat. Many causes may disturb this controlling influence. For instance, in any of the exanthemata or acute rheumatism, it would appear that if the temperature rise to a certain height (somewhere above 106°F., but varying in different individuals) a paralysis of the controlling nervous system takes place and a still greater divergence from the normal temperature results. In such cases of hyperpyrexia we find the cold bath, rather than antiseptic antipyretics, valuable, by actually abstracting heat, and so allowing the nervous system to recover itself.

So, too, in the case of catheter fever or urinary fever. We can quite well understand that the shock to the nervous system conducted from end-organs, admittedly the most sensitive in the body to local irritation, brings about such a depression of nerve energy, that it is unable to preserve the balance already spoken of, with a result that the blood and tissues generally are allowed to retain and propagate those organisms which speedily bring about the so-called "typhoid state."

That this explanation is feasible is rendered more striking by the fact that patients who are found most prone to this disorder are those in whom the urine is known to be possibly large in quantity, but certainly low in specific gravity. We all know how frequently such a state of matters prevails in functional disorders of the nervous system. Undoubtedly, the very necessity for the introduction of an instrument implies some aberration from absolute health, but this explanation holds good independently of the vexed question of discoverable kidney lesion.

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## REPORT ON MEDICINE.

1. **Kish.**—UEBER DEN EINFLUSS DES FETTHERZENS AUF DEN PULS. (On the Influence of Fatty Heart upon the Pulse.) *Berliner klin. Woch.*, March, 1884.
2. **Buzzard.**—POSTERIOR SPINAL SCLEROSIS CONSECUTIVE TO DISEASE OF BLOOD-VESSELS. *Brain*, Part xxiv. 1884.
3. **Horsley.**—THE POSITION OF THE CORTICAL MOTOR CENTRES AS ILLUSTRATED BY FOUR CASES OF INJURY TO THE BRAIN IN MAN. *Proceedings of the Physiological Society of London*, 13th December, 1883.
4. **Archambault and Damaschino.**—RECHERCHES CLINIQUES ET ANATOMO-PATHOLOGIQUES SUR UN CAS DE PARALYSIE SPINALE DE L'ENFANCE, AVEC AUTOPSIE AU VINGT-SIXIÈME JOUR DE LA MALADIE. (Clinical and Anatomo-Pathological Researches on a Case of Infantile Spinal Paralysis, with an Autopsy on the Twenty-sixth day of the Disease.) *Revue Mensuelle des Maladies de l'Enfance; Fortschritte der Medicin*, 15th March, 1884.
5. **Beevor.**—ON THE RELATION OF THE "AURA" GIDDINESS TO EPILEPTIC SEIZURES. *Brain*, Part xxiv. 1884.
6. **Werner.**—EIN FALL VON ACUTER NEPHRITIS, BEI WELCHEM DER IM HARN ENTHALTENE EIWEISSKÖRPER NUR AUS GLOBULIN BESTAND. (A Case of Acute Nephritis, in which the Albuminous Bodies contained in the Urine consisted only of Globulin.) *Deutsche Med. Woch.; Fortschritte der Med.*, 15th March, 1884.
7. **Lehmann.**—EIN BEITRAG ZUR LEHRE VOM GESCHMACKSINN. (A Contribution to the Knowledge of the Sense of Taste.) *Pflüger's Arch.* vol. xxxiii. p. 194.

1. **Kish on the Influence of Fatty Heart upon the Pulse.**—The characters of the pulse were studied by Kish in about 400 cases of fatty heart, and he gives numerous sphygmographic tracings in illustration of the most marked of these. In about 36 per cent. of the cases he found the pulse to have the characters of the pulsus tardus, sometimes being distinctly anacrotic. In 32 per cent. the pulse tended to dicrotism. In 24 per cent. the character of the pulse was due to arterial sclerosis. The pulse was arhythmic in 7 per cent. Kish holds that the sphygmographic tracings of cases of fatty heart are very useful, both diagnostically and prognostically, indicating in particular arterio-sclerosis, and degeneration of the myocardium.

2. **Buzzard on Posterior Spinal Sclerosis consecutive to Disease of Blood-vessels.**—The precise mode of origin of tabes dorsalis is a question which has not hitherto admitted of any satisfactory answer. Most generally it is regarded as an irritative lesion, and Charcot looks upon the systematic fasciculated sclerosis, such as is found in tabes dorsalis, and in primary sclerosis of the antero-lateral columns, as an irritative lesion of the nervous element proper, while as regards multiple sclerosis he believes that the irritation first attacks the connective tissue, and leads secondarily and consecutively to degeneration of the nervous element.

In his "Clinical Lectures on Diseases of the Nervous System," Dr. Buzzard described a case of tabes dorsalis in which it seemed probable that the inflammatory action might have attacked the connective tissue of the cord through the channel of the inflamed pia mater, as the patient had at one time had the symptoms of meningo-myelitis. He now brings forward another case, which is of great interest as tending to confirm the probability that such a process is sometimes the manner in which tabes dorsalis is produced. The fatal termination of the case admitted of a very complete examination of the nervous tissues, which was made by Dr. Bevan Lewis.

The history of the case was briefly as follows:—The patient, æt. thirty-nine, was a house-painter, but had never suffered from any symptom of lead-poisoning. The illness began with the ordinary ataxic symptoms, along with numbness, tingling, and shooting pains. There was diplopia, gradually increasing dimness of vision, and ultimately advanced optic atrophy in the left eye. The patellar reflexes were absent; the plantar only obtained with difficulty. He died after a severe attack of tonsillitis, the total duration of his illness having been, according to his own account, twenty-seven months.

The examination of the spinal cord is very fully reported. The lesions there found pointed to a peri-arteritis, apparently originating in the soft membranes, and spreading inwards along the nutrient supply of the posterior columns of the cord. But the disease was not strictly confined to these columns, but had spread to other parts of the cord, though it was there met with in far less degree. This fact, which is one frequently met with in cases of tabes dorsalis, constitutes, as Dr. Buzzard points out, a considerable difficulty in the way of unqualified acceptance of the hypothesis that the nervous elements are primarily affected. It offers, however, far less objection to the view that the irritative lesion is first manifested in the connective tissue.

The optic nerve of this patient was examined after death by Mr. Nettleship, who found far-advanced atrophy, which affected the periphere of the nerve, and gradually ceased as the centre was approached. Dr. Buzzard thinks that this very interesting condition may be due to the fact that the vascular supply of the optic nerve passes from the centre to the periphere, and believes that altered states of nutrition dependent upon disease of the vessels would probably, therefore, be experienced first at the periphere of the nerve, and gradually make their way upwards towards the centre.

The patient did not suffer from any gastric crisis until three weeks before death; and Dr. Buzzard's view, that such crises are due to irritation of the nucleus of the vagus, by extension of the sclerosis into the bulb, is here confirmed by the observation of Dr. Bevan Lewis, that the nuclei of the vagus and spinal accessory nerves were much affected.

3. **Horsley on the Position of the Cortical Motor Centres.**—At the meeting of the Physiological Society, on the 13th of December last, Mr. Victor

Horsley described four cases of injury to the brain in man which illustrated very exactly the position of the cortical motor centres in the human cerebrum. The cases were selected as fulfilling as nearly as possible the conditions of exact experiment, since the lesion in each was extremely limited, while the symptoms were well marked, unilateral, and appeared immediately after the exciting cause; while, finally, in three instances the opportunity of examining the brains occurred within a few days of the injury.

In the first of these cases Broca's convolution was bruised by a hammering blow on the skull directly over it. Aphasia followed immediately, the patient being only able to say "yes." A slight local cerebritis round the bruised point gave rise on the fourth day to two short convulsive spasms affecting the facial muscles in the order indicated by the grouping of the cortical motor centres for the face.

In the second case the anterior half of the centre for the left lower limb was totally destroyed, along with the upper third of the centre for the left upper limb. The remaining portions of these centres were undermined by a considerable hæmorrhage which cut through the fibres of the direct pyramidal tract. There immediately followed paresis of the left limbs, which deepened into paralysis in the course of a few hours. The same conditions obtained in the third case; but in addition the centres for the face were also undermined by similar extravasation, and paralysis of the face became added to that of the left limbs.

In the fourth case there was laceration of the right superior temporo-sphenoidal gyrus, which caused hæmorrhage over the surface of the lower third of the ascending frontal gyrus, where the cortex cerebri was depressed 2mm. The extravasation also spread over the lower half of the parietal lobe in a thin layer. When the patient came under observation there was paralysis of the lower division of the left facial muscles and deafness of the left ear. On the fourth day cerebritis commenced under the area of extravasation, and caused convulsive movements of the left side of the body, the muscles being affected in the order of proximity of the cortical motor centres.

4. **Archambault and Damaschino on Infantile Spinal Paralysis.**—The writers obtained a post-mortem examination in the case of a child suffering from this disease, who died on the twenty-sixth day from a severe intercurrent attack of measles. As is well known, the opportunities of investigating the pathology of infantile spinal paralysis are very rare, as the disease is not of itself fatal; and such post-mortem examinations as have been recorded were made in very advanced stages of the disease, months or years after its commencement. On this account the observations here recorded are of very exceptional value and interest.

The child, who was two and a-half years old, and had previously had good health, showed, first of all, the well-known slight alterations in general sensibility. The right arm and left leg became completely paralysed, the other muscles only showing weakness. Death occurred, as has been said, on the twenty-sixth day. On examining the spinal cord, it was found that there were numerous points of red softening in the grey substance, which were chiefly marked in the cervical and lumbar swellings, and which lay mainly in the region of the anterior horns. They were for the most part bilateral, with sharply-defined margins, and evidently of inflammatory origin, the nervous tissue having disappeared, although the process had not gone sufficiently far to produce a cavity. In the smaller centres of softening the ganglian cells were atrophic, in the larger they had entirely disappeared. The portions of the spinal cord which were outside of these centres of softening presented a completely normal appearance. The authors regard the disease as systemic, the myelitis being confined to the substance of the anterior horns of the cord.

**5. Beevor on the Relation of the "Aura" Giddiness to Epileptic Seizures.**—The feeling of giddiness occurring as a warning or aura before epileptic seizures has long been known, but has not up to the present time been studied with any care. Dr. Beevor endeavours in the present article to show that there is some relation between the direction of the apparent movement of the patient and surrounding objects, and the initial rotation of the head at the commencement of the fit.

The cases in which he found this phenomenon to be present were seventeen in number. In eight of these cases the patients stated that they felt themselves as if rotating from right to left, and in nine the rotation appeared to take place in an opposite direction. Dr. Beevor found that in all the eight cases of the first of these divisions—*i.e.*, these in whom the sensation of giddiness was from right to left, the fits began on the left side of the body, and in most the head turned to the left in the initial tonic spasm. Of the nine cases in which the giddiness was from left to right, it was found that in five the fits commenced on the right side. There remained, however, four patients out of the seventeen in whom this distinct connection could not be traced, and Dr. Beevor is unable at present to explain the cause of this discrepancy.

**6. Werner on a Case of Nephritis, in which only Globulin appeared in the Urine.**—The patient in question was a boy five and a-quarter years old, who was seized with an attack of albuminuria, which proved fatal in the course of ten days, with symptoms of œdema effusion in the serous cavities, and suppression of urine. Throughout the illness the urine, which was always small in quantity, was strongly acid, and contained an albuminous body, which was proved to be paraglobulin by the following tests:—It was precipitated by nitric acid, and also by over-saturation with magnesium sulphate, and when the latter precipitate had been removed by filtration, the filtrate gave no further reaction of albumen, showing that no albuminous body other than paraglobulin was present. The author believes that the paraglobulin was derived from the necrosis of the renal epithelium. No post-mortem examination was allowed, so that it was not possible to ascertain exactly what was the condition of the kidneys.

**7. Lehmann on the Sense of Taste.**—The tongue possesses a double system of sensory tracts, represented by the lingual and the glosso-pharyngeal nerves. Considerable doubt still exists as to what part is taken by each in the various sensations of taste. It is well known that certain stimuli (as, for example, mechanical) affect the lingual nerve only, and that certain others (sugar and quinine) are perceived through the medium of the glosso-pharyngeal fibres. But there is a third series of irritants (almost all substances which have taste, as well as electric stimuli) in regard to which it is exceedingly uncertain whether they irritate the fibres of the lingual or the glosso-pharyngeal, or whether by certain of these both the nerves are set in action. The greatest doubt hangs round the substances which give rise to an acid, a salt, and an astringent taste in the mouth. It is rare that an opportunity occurs which enables this question to be investigated, but Lehmann was fortunate enough to meet with one in the following way:—A healthy labourer met with a crush of the head which resulted in paralysis of the facial (both branches), the glosso-pharyngeal and the hypoglossal nerves on the right side. The diagnosis arrived at by several surgeons who saw him was, that there had been fracture of the base of the skull, with injury of the trunks of these several nerves. It was possible here, then, to determine what was the respective function of the facial and of the glosso-pharyngeal nerves, for, on the one side (left) of the tongue, both nerves were functionating, while on the other side (right) the glosso-pharyngeal was paralysed.

Lehmann conducted his investigation by touching different parts of the tongue with a fine brush or glass rod dipped in the substance to be tested. Between each test the mouth was washed well out. The chief results obtained were as follows:—

On the left (healthy) side, all impressions of taste were quickly recognised. The most sensitive region was found to be a small zone at the tip of the tongue, about 1 cm. long and ½ cm. broad. All tastes were most clearly felt there. The sensation was somewhat less acute, but still very sharp, at the border of the tongue (a zone of ½ cm. broad), and over the base in the neighbourhood of the circumvallate papillæ. The central region of this left side of the tongue was less sensitive.

On the right (injured) side, the sensation of taste was limited to the small zone at the tip of the tongue, and here it was less acute than on the opposite side. At the right border, over the central region of the right side, and in the right circumvallate papillæ, there was no special sense of taste at all. The common sensibility of both sides of the tongue was intact. On the right side, the patient derived no sensation from the application of sugar nor of strong solutions of quinine. There are, therefore, sweet and bitter substances which give rise to no special sensation of taste, and which, therefore, only act upon the lingual nerve. The application of acid on the right side gave rise only to a more or less strong burning sensation, and there was never any trace of the acid taste which was so clearly perceived when the application was made to the healthy side.

Salt substances (common salt and sulphate of magnesia), both in weak and in concentrated solution, when applied to the paralysed side, only gave rise to a slight burning sensation, which the patient described as "biting."

The astringents (tannin and sulphate of copper) gave rise on the healthy side to an acid or a salt taste, in addition to a feeling of astringency. On the injured side, the only sensation which their application called forth was that of astringency.

The observations go to confirm the results arrived at previously by Von Vintschgau (*Pflüger's Arch.* vol. xx. p. 230)—viz., that in the case of acids there is, in addition to a common sensation through the lingual nerve, a special sensation through the hypoglossal, and that also in the case of salt and astringent substances there is a double impression on the two nerves which supply the tongue.

It will be at once seen how important these observations are in reference to the diagnosis of certain cerebral lesions.

J. Graham Brown.

Edinburgh Clinical Journal.—March 29, 1884.

# *REPORT ON MENTAL DISEASES.*

1. **Bianchi.**—LUSSANA, SCHIFF, E LUCIANI SULLE FUNZIONE DEL CERVELLETTO. Lussana, Schiff, and Luciani on the Functions of the Cerebellum.) *La Psichiatria*, anno ii. fasc. 1, p. 68: Naples, 1884.
2. **Andriani, G.**—CONTRIBUTO ALLA CONOSCENZA DELLE PSICOSI DEGENERATIVE. (Contribution to our Knowledge of the Degenerating Psychoses.) *Psichiatria*, anno ii. fasc. 1, p. 7.
3. **Lippestad.**—INSTITUTET FOR AANDELIG ABNORME PIGER, THORSHAUG. (Institution for Imbecile Girls at Thorshaug). *Kristiania*, 1883.
   THORSHAUG INSTITUTS, AFDELING FOR EPILEPTIKERE, 1883. (Thorshaug Institution: Division for Epileptics.) *Kristiania.*
4. **Macdonald, C. F.**—INSANE CRIMINALS. "Twenty-Third Annual Report of the Superintendent of the State Asylum for Insane Criminals, Auburn, New York."
5. **Grierson.**—DIPSOMANIACS IN ASYLUMS. "Report of the Roxburgh, Berwick, and Selkirk District Board of Lunacy, for the year ending 15th May, 1883."
6. **Le Docteur Prosper Despine.**—LA SCIENCE DU CŒUR HUMAIN; OU, LA PSYCHOLOGIE DES SENTIMENTS ET DES PASSIONS D'APRÈS LES ŒUVRES DE MOLIÈRE. (The Science of the Human Heart; or, the Psychology of the Sentiments and the Passions from the Works of Molière.) Paris, 1884, pp. 136.

1. **Bianchi: Lussana, Schiff, and Luciani on the Functions of the Cerebellum.**—Dr. L. Bianchi, in a short review, compares the opinions of those three physiologists upon the functions of the cerebellum. Lussana regards the loss of the power of equilibrium, frequently observed after injury to the cerebellum, as owing to diminution of the sense by which we are cognisant of the contraction of the voluntary muscles. He has collected 101 clinical observations in which cerebellar ataxia was noted, and in which, after death, there was found a lesion of the cerebellum; ten other cases in which this characteristic symptom was not observed, and perhaps not sought for; eight cases in which it could not be observed, from the weak condition of the patient. There were thirty-one cases, both old and new, in which examination after death showed a cerebellar lesion, while no ataxia existed during life; and nine cases in which the ataxia either existed only in the hands and arms, or in both the superior and inferior extremities at once. From these cases Lussana draws the following conclusions:—

(1.) That lesions of the cerebellum produce a disease characterised by that form of ataxia to which the name of cerebellar has been given.

(2.) That there are lesions of the cerebellum in which there is no symptom. Nothnagel holds that the ataxia only appears when the vermiform process of the cerebellum is injured; but, according to Lussana, the ataxia may be absent whether the injury be in the lateral or central lobes.

Schiff's experiments have been principally performed on mammalia. He found that superficial lesions of the cerebral hemispheres, even when the vermiform process was injured, never gave cause to any symptom till the section reached the level of the middle peduncles of the cerebellum. Moreover, ataxic symptoms were not noticed in young animals, or in those cases in which the lesion was symmetrical on both sides. When the injury in grown animals is extensive, and when it only occupies the central or inferior lobe of the cerebellum, the motor disturbances last for an indefinite period.

Schiff does not find that injury to the cerebellum caused a want of co-ordination of movements. The reeling gait, he thinks, depends not on the relations of the motions of the limbs to one another, but on separate movements of different groups of muscles, owing to the nervous influence being distributed amongst the neighbouring muscles as well as those whose contraction is needed for the desired action.

Schiff has thought to render this clear by a number of experiments on dogs and cats, whose paws were dipped in oil that the traces might remain on the floor. In other experiments, he made squirrels run upon a level sounding-board. When the animal was uninjured, the sound of galloping was regular; but even when there was a staggering in its gait from injury to the cerebellum, the rhythm of galloping was maintained: it was still timed in the same way; but the single tones of which each principal tone was composed had become unequal. They covered one another imperfectly, so that the single tones were often heard.

According to Schiff, there is an aberration in the action of the muscles which impedes the perfect completion of a voluntary motion. To use Schiff's illustration, a dog at rest, who wishes to lift his head, must first fix the cervical vertebræ, and then call into action the elevator muscles of the head. After an injury to the cerebellum the innervation probably takes the same way, but it is distributed amongst the different muscles of the head and neck in a very variable manner, so that the elevators of the head maintain their predominance only by a continual struggle with the other muscles, which derive from the nervous centres a greater stimulus than is needed. The irregular walk of the animal depends upon a greater or less looseness of adaptation ("slegamento") between the contractions of the muscles of the pelvis and the dorsal part of the spine, on the one hand, and the contractions of the muscles of the shoulder, and the neighbouring regions of the back, on the other.

The jaw and tail of the dog are not involved in this confusion of motions. Schiff cites some cases in which, after great destruction of the cerebellum, no symptoms were observed save that the animal was slow in its movements and soon got wearied. It is an important question through what organ, after the cerebellum is destroyed, do young animals learn to walk?

Professor Luciani does not accept the views either of Lussana or of Schiff. He has succeeded in entirely destroying the cerebellum in dogs and keeping them in life for a long time. Luciani attributes the so-called inco-ordination of movements to the effect of the wound through irritation of the middle peduncles of the cerebellum, or the injury to the general health of the animals. Like Schiff, he attributes the so-called inco-ordination to the abnormal irradiation and unequal distribution of innervation depending upon an active impediment to the normal succession and association of voluntary movements. This stage generally lasts about a month, and is succeeded by a period of cerebellar ataxy, which, according to Lussana, is neither owing to an altered sense of equilibrium nor to an imperfect power of co-ordinating, and adapting the muscular movements to the desired motion. It is, he thinks, dependent upon a want of tone, or physiological fusion and normal measure and energy in the common muscular actions of animal life. Luciani founds this interpretation especially upon the fact that a dog in the ataxic stage can swim perfectly when thrown into water. He thinks this is because the dog loses so much of his weight by the greater pressure of the water, which renders locomotion a lighter muscular effort. A good while after the removal of the cerebellum, animals show symptoms of depraved general nutrition, which Luciani considers the indirect result of the loss of cerebellar innervation, to which he is inclined to attribute a certain influence on the processes of organic life.

Dr. Bianchi remarks, in conclusion, that the physiology of the cerebellum has made immense progress, though its precise action upon the organs of motion and on general nutrition is still a question. In fact, the progress of our knowledge will require to be a great deal more immense till we have a clear idea of the functions of this perplexing organ. It is certainly noteworthy that, with all our accurate knowledge of the comparative anatomy and special structure of the cerebellum, and after so many experiments and clinical observations upon a nervous centre so well marked off, physiologists are not able to define its functions save in vague terms, and are so little agreed in the interpretation of the symptoms following upon their vivisections. The subtilty of nature is evidently greater than the subtilty of our methods of testing and explaining her ways.

2. **Andriani: Tamburini on Dominant Ideas.**—Dr. Andriani, before detailing some cases of his own, studied in the Provincial Asylum of Naples, gives a short resumé of the literature of dominant or fixed ideas—the *zwang-vorstellungen* of the Germans. Passing over the contributions of Legrand du Saulle, Berger, Ball, and others, we take his sketch of the views of Tamburini, as Andriani, not having completed his article, has not yet favoured us with his own conclusions.

In the case of simple fixed ideas (metaphysical mania, or mania of speculation the first stage of *folie de doute*), the few ideas which occupy the visual point of consciousness attract to themselves all the spontaneous attention, without the will being able to escape from their engrossing tyranny. On the one hand, there is a functional exaggeration of the spontaneous attention, on the other a diminution of the voluntary attention. While the spontaneous attention belongs to the class of reflex and automatic phenomena, the voluntary attention is a product of intellectual education, and is, at best, a weak and unstable acquisition. In the first case, the inhibitory action of the states of consciousness is performed in a spontaneous and immediate manner; in the second case, it is only by a fatiguing exertion that the processes of association are checked. This prevents new states of consciousness from appearing persisting and diffusing their associations. It is quite natural that in states of congenital or of acquired weakness of mind, everything which is complex, artificial, and thus less stable, should be easily dissolved, while the processes of thought, which are more natural, more automatic, and more of a reflex character, are apt to resume their ascendancy.

In another group of fixed emotional ideas with corresponding actions (mysophobia, the second stage of the *folie de doute*, fear of contact, claustrophilia, claustrophobia, agoraphobia) the fixed idea is intimately bound to a sentiment of fear or distress, which exercises upon the mind the same tyrannical dominion as the fixed simple ideas. Thus the mental excitement is all the stronger that it is connected with an emotional state. On this account, the limitation or suspension of the processes of association, the, as it were, spasmodic tenacity of spontaneous attention, and the powerlessness of voluntary attention, determine the condition of the mind. In these derangements the emotional state gives an impulse to certain actions which are an outlet to excessive mental tension (washing the hands, stopping on the way, turning aside, turning backwards). Though they are conscious that these actions are strange and irrational, there is no succinct resistance to overcome the blind force which impels them to act.

What is needed to check this overpowering tendency is the will-force which is able to give to the voluntary act a direction along the line of the greater resistance, when two groups of antagonistic tendency struggle to supplant one another in the field of consciousness. The learned professor follows out the same train of thought in the explanation of irresistible impulses, or impulsive monomania.

3. **Lippestad on the Institution at Thorshaug for Imbecile Girls and Epileptic Idiots and Imbeciles.**—In the month of August, 1880, we had the pleasure of seeing J. A. Lippestad, a man of great experience and knowledge in various methods and systems of teaching, who had just come to Scotland on a mission from the Norwegian Government. His object was to inquire into what was being done in foreign countries for the care, treatment, and training of idiots and imbeciles. After visiting some institutions for the education of the imbecile, deaf and dumb, &c., in Scotland, he went to see the principal English asylums for idiots, as well as a number of similar institutions in Germany and the Netherlands. Some of the information which he gained in his survey has been made use of in preparing the two reports quoted above. We learn that the first school for imbeciles in Norway was started in 1876. In the spring of 1878 it was settled at Thorshaug, near Christiania, with seventeen pupils. At the end of 1883 there were seventy-three, three of whom were out-door pupils. They are all girls, though idiocy is much commoner with boys. They are taught reading, Bible history, writing, arithmetic, drawing, gymnastics, musical drill, singing, and different kinds of work. To judge from what they have learned in arithmetic, there must be a considerable number of fairly educable cases, imbeciles being in general very deficient in knowledge of numbers, rarely coming to work at division. We are told that one of the pupils at Thorshaug can do fractions, proportion, and compound interest. Four can do decimal fractions, proportion, and interest; eight can count up to 10,000; seven to 1000; sixteen to 100; five to 50; nine to 20; and four to 10. The remainder have but a rudimentary idea of numbers. Mr. Lippestad thinks, from what he witnessed in foreign countries, that some imbeciles may succeed in making a living by various handicrafts, of which he gives a long list, comprising sewing, working the sewing-machine, knitting, crocheting, making carpets and slippers, ribbon-weaving, and threading beads. In another workshop the pupils may be employed in basket-making, brush-making, and plaiting of rushes or hemp; in another division, cobbling or making new shoes. To this is added a number of employments connected with the culture of the ground. He considers that these employments are useful both for educational and utilitarian purposes.

The second report contains the substance of an application which Mr. Lippestad made to the Norwegian Storthing for the erection of a division for epileptic idiots, a class very well deserving of timely relief. From a note appended by Dr. Moll we learn that there are in Germany 42,000 epileptics, of whom 15,000 are affected in mind. Mr. Lippestad insists upon the necessity of a non-stimulating diet in epilepsy. The Storthing in 1883 granted 1000 kroner to the Thorshaug Institution, which commenced to receive epileptics on the 1st November of the same year. Since Lippestad has thought my opinion about the prognosis and treatment of epileptic idiocy worth quoting, I may be allowed to say that I now regard this form of mental disorder more hopefully, and am more disposed to agree with my friend, Dr. W. A. F. Browne, on the question, than when my book on idiocy and imbecility was published. This has been already intimated elsewhere.

As an illustration of what may be done in teaching imbecile girls to work, we may quote a short passage from the last Report of the State Asylum at Syracuse (for 1882), given by my lamented friend, Dr. H. B. Wilbur:—"The number of inmates of the asylum is now nearly four hundred. Three paid employés, with the help of some of the older girls, do all the laundry work of the whole establishment. One woman, with similar assistance, does all the baking of the whole family. At least thirty girls can use the sewing-machine with skill. Quite a number assist very intelligently in the care of the nursery cases."

**4. Macdonald on the Criminal Insane.**—The following passage is taken from the last Report of the State Asylum for Insane Criminals at Auburn, New York. The number of patients treated during the year ending with September, 1882, was 154 men and 10 women. There were 4 deaths, and 11 discharged recovered. There were no serious accidents.

"From a somewhat extensive observation of several years," writes Dr. Macdonald, "of the criminal and non-criminal insane, I am led to believe that the element of crime, when interwoven with insanity, exerts a modifying influence upon the mental manifestations of that disease, and that to this extent, in a large proportion of cases, the criminal insane, medically speaking, may be regarded as a distinct and separate class, the analogue of which is not found among the ordinary insane. They present certain characteristic mental peculiarities which experience in observing this class enables one to recognise as the indelible stamp of crime, and although the line of demarkation may not always be apparent to the casual observer, its existence, as a rule, can be discovered, and demonstrated, if time and facilities for careful observation be had.

"In my experience with the criminal insane, now nearly five years, I have been struck with the frequency of cases in which there was an absence of expressed delusions, although the manner and conduct of the individual was clearly indicative of a delusional state. Comparing these individuals with their former selves, we find undoubted evidences of a departure from their normal mental state. They have become sullen, morose, and morbidly irritable. They rebel against the ordinary rules of discipline, and make unprovoked assaults upon those around them, without apparent motive and without offering any explanation therefor. That they are suffering from impairment of bodily functions is shown by sleeplessness, loss of appetite, coated tongue, foul breath, constipation, a 'greasy' condition of the skin, and a livid, puffy appearance of the extremities, indicating a relaxed state of the blood-vessels. They are generally coherent in conversation, do not complain of being ill, nor apply for medical treatment. They frequently continue in the performance of their allotted tasks in prison for months, before the attention of those in daily contact with them is attracted to their mental disturbance. From this condition they either recover or gradually drift downward to complete dementia, with no outward exhibition of delirium or mental excitement to mark the course of their disease. The occurrence of acute, delirious mania, according to my observation, is exceptional among the criminal insane, melancholia and dementia, with an occasional case of sub-acute mania, being the predominant types of insanity observed here. A certain proportion of cases, and usually those of hardened criminals, are characterised, in their mental manifestations, by the most pronounced vicious tendencies, their insanity apparently expressing itself in a marked exaggeration of the depravity and vice displayed by them, prior to the onset of their disease. On the mental side, this is substantially the only evidence of disease which these cases present. Physically, however, their condition is marked more or less by the signs of bodily impairment above referred to. Being known to the authorities as abandoned and depraved individuals, it is not surprising that their insanity is not recognised by casual observers, when it expresses itself in the manner I have indicated."

5. **Grierson on Dipsomaniacs in Asylums.**—The physician who achieves success in the treatment of the inebriate will deserve the thanks of many. In commenting upon a patient who, after trying several hydropathic establishments, spas, &c., placed himself under restraint voluntarily, the esteemed medical superintendent of the Roxburgh District Asylum observes:—

"As is too often the case in our experience, and, I believe, in that of most, little benefit is derived by the one, so little credit accrues to the other of such contracting parties. Thus it was in this. Under promises readily given, but with no thought or intention of their being other than purposeless and delusive, he or she prevails over the one member of the family who has suffered least by his or her misdoing, and all appeals—appeals to medical belief, appeals to a past but sad experience—are set at nought; another chance must be given in accordance with the better knowledge of the all-but stranger, and that at once. The end is nearly unvaryingly the same, and soon told. Before night, with the opportunity, which is rarely wanting, he is beyond hope, helpless for self-care, and if not an actual danger, certainly an unbearable nuisance to the public. Lucky for him is it if his disposition and antecedents are known in the neighbourhood; on this account commiseration is felt for him, but often more for the misplaced confidence of those in whose charge he is believed still to be. Friends are made acquainted with the danger, and to avoid a scandal these appear in time, not to save another downfall, but an unintentional self-death, perhaps. No one wishes to deal with such a case more than once, or at most twice; and unhappily, after having tried and wearied every establishment by this playing at treatment, while good was possible, fate, rarely baulked, now interposes, and sentences him to a life of uselessness and unbroken restraint."

6. **Despine on the Psychology of the Passions in Moliere.**—The learned author of this little work finds in the comedies of Molière an underlying sense of the principles of psychology, which he has already drawn from the study of nature and given to the world in his "Psychologie Naturelle," and his later book "De la Folie au Point de Vue Philosophique." The great dramatist, who was eminently a student of character, often showed in his plays how the reasoning faculties may become the slaves of human instincts, desires, and passions. Dr. Despine's quotations from Molière, and his commentaries thereon, are rendered more attractive by profound remarks of his own. Take the following as an example:—

"Under the influence of the passions natural to man in a healthy condition, as much as under the influence of those produced by cerebral disease, the insane person can rave in a logical manner (*peut délirer logiquement*); guided by his passions which have given him false premises, he arrives through logical reasonings at erroneous chimerical and immoral conclusions. He thus supports his inspirations of passion by reasonings very well combined, which prove to him that though his moral faculties are compromised, his intellectual faculties are still unaffected. Leuret thus defines an insane person—'A man who deceives himself.' In order to complete this definition it is necessary to say: The madman is a man who is blinded and deceived by his passions; and his passions blind and deceive him because they occupy his mind so completely that no moral sentiment can intervene to show in a true light his passionate inspiration. Locke has defined the madman as 'a man who reasons correctly from false premises.' But, again, to complete the definition one must add that the false principle must be suggested by a passion which has complete possession of the mind. This has been shown in a life-like manner by Molière in his comedies. He makes Chrysale say:—

> "'Raisonner est l'emploi de toute ma maison,
> Et le raisonnement en bannit la raison.'

"The whole difference between the madman in health and the madman in disease is that the passions which blind the former belong to his natural character, and are due to the normal activity of his brain; while the passions which rule and blind the other do not belong to his character, but are suggested by the morbid activity of his brain. The mental condition is the same in both; even the delirium may be of the same character."

WILLIAM W. IRELAND.

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# OBITUARY.

## DR. ALLEN THOMSON.

ALLEN THOMSON was born in Edinburgh in 1809, and died in London on 21st March, 1884. During his life he not only occupied chairs in three Scottish Universities,—Aberdeen, Edinburgh, and Glasgow,—but for two periods taught in the Extra-Academical School of Edinburgh with signal success. From an early period he devoted himself to the study of embryology, and to the end, although he had many other pursuits, that continued to be his favourite study.

He wrote many articles on physiology and anatomy, edited several editions of Quain's "Anatomy," published two parts of the "Outlines of Physiology," and gave addresses to the British Association, of the Plymouth meeting of which he was President. No man worked more assiduously at anything he undertook, and his avocations were numerous.

After graduating as M.D. in the University of Edinburgh in 1830, he was associated in 1831 with Dr. Sharpey in the teaching of anatomy and physiology in Gordon's class-room, No. 9 Surgeons' Square. This building, which had then become the property of Dr. John Thomson, his father, stood in the south-west corner of the Square, between Barclay's Lecture Room and Old Surgeons' Hall. In 1839 Dr. Allen Thomson was appointed Professor of Anatomy in Aberdeen, a post which he held for two years, when he returned to Edinburgh, and taught a large extra-mural class of anatomy in No. 1 Surgeons' Square. This he resigned in 1842, on his appointment to the Chair of Physiology in the University of Edinburgh, and was succeeded in his class of Anatomy by the late Professor Spence, associated at that time with the late Drs. Handyside and Lonsdale.

From 1848, when he was appointed to the Chair of Anatomy in Glasgow, he threw himself heartily, not only into his own special work, but also into University affairs. He took an active part in the removal of the old College to Gilmorehill, and the exertions he then made, and the anxiety connected therewith, told visibly upon his health. In 1877 he retired from the chair, to the universal regret of his colleagues and the public, and since then resided in London, continuing his literary labours.

As a teacher, Dr. Thomson was singularly lucid, painstaking, and kindly.

No student failed to like and respect him, and there are many men now scattered over the world who owe to him much of their success in life.

In an Edinburgh journal it would be wrong to omit stating that, although long separated from his native city, he loved its Medical School passionately. While spending his summer holidays in Scotland last year, he made a point of attending the graduation ceremony, and afterwards dwelt with satisfaction upon what he had seen and heard.

The son of a very distinguished man, who was the friend of many great Scotchmen, Dr. Thomson loved to speak of the past, and his reminiscences of Jeffrey and Cockburn in Edinburgh, and of Holland House and its frequenters, were vivid and interesting. Allen Thomson was a most conscientious and careful observer. He never announced a result of which he was not quite certain, and because of this caution inherent in his nature, he is not so conspicuous a physiologist as he might have been. But as the representative of the old physiological school, he stands in the first rank, while as a teacher of anatomy, practical and general, he was unrivalled.

In private life he was a charming companion and friend, taking an interest even in the trifles which encompass every one, ever ready to help with counsel, advice, and sympathy.

He was buried in the Dean Cemetery on Friday, the 28th of March, in a grave adjoining that of his brother, Dr. William Thomson, formerly Professor of Practice of Medicine in the University of Glasgow.

JOHN. B. COWAN.

## ALEXANDER WOOD, M.D., F.R.S.E., F.R.C.P.E.

THE death of Dr. Alexander Wood, on the 26th of February, has removed from among us another of that brilliant band who in past days did so much to make the Edinburgh Medical School famous throughout the world.

Alexander Wood, who was the son of Dr. James Wood, a well-known Edinburgh physician, was born in Cupar in 1817, received his education, first at the Edinburgh Academy, and subsequently in the University, and graduated as Doctor of Medicine in 1839, becoming a Fellow of the Royal College of Physicians in the following year. Twice during the course of his studies he was elected President of the Royal Medical Society—the highest honour to which a medical student in Edinburgh can attain.

After graduation he settled in Edinburgh, and his high professional attainments, along with the conspicuous geniality and kindliness of his disposition, very soon procured for him wide reputation and large practice. Amidst its engrossing cares, however, he at all times kept before him the scientific aspects of medicine, and wrote numerous and valuable articles on many different subjects.

Undoubtedly the most important of Dr. Wood's contributions to medical science was the invention of the hypodermic method of administering drugs by means of the now well-known syringe with a hollow needle-point. How universally useful this method has become, and how far-reaching is its power for good, we all know; and, no doubt, when first the idea struck him, as he was examining the sting of a wasp under the microscope, he could little foresee the extent to which the method he was then devising would benefit the human race.

Another line which his fertile pen took was an examination of the pretensions of homœopathy, and he embodied his views in a pungent and powerful work entitled "Homœopathy Unmasked," which, in the words of a reviewer of the time, proved "that homœopathy is something worse than nonsense." In a later and very eloquent work, "Rational Medicine: a Vindication," Dr. Wood asserted the then not fully recognised claims of medicine to be considered as a science, pointing out its limits, its high aims, its purposes, and the true scientific spirit in which it ought to be cultivated.

All through a long life Dr. Wood continued to use his cultured pen in the interests, not only of his own profession, but of various subjects of general public importance, and his last literary work was an exceedingly powerful review of Sir Alexander Grant's "Story of the University of Edinburgh," which appeared in our pages during the present year. The ink of his proof-corrections was, indeed, hardly dry before his last illness seized him, and his last work was done.

For ten years Dr. Wood was a Lecturer on the Practice of Physic in the Edinburgh Extra-Academic School, and in his class-room he gave evidence of deep knowledge of his profession and pre-eminent oratorical powers. His course of lectures was all along very successful, and was largely taken advantage of by students.

It was, however, as a medical politician that Dr. Wood's distinguished abilities chiefly showed themselves. He was from the very commencement of his medical career, as a Fellow of the Royal College of Physicians, devoted to its interests. He was first Secretary, and subsequently President of the College, and he fought its battles before Parliamentary Committees and in the General Medical Council with conspicuous ability, at a time when there was great need of so eloquent an advocate and of so loyal a friend. He was again and again returned as member of the General Medical Council, and he engaged in its deliberations with great energy and with universally acknowledged ability.

Medical education was always a subject of great interest to him, and he was ever found to be the friend of whatever liberal movement took place in that direction. In university matters Dr. Wood was also much interested. For a series of years he took part in the business of the Edinburgh University Council, of which he was a member. He was appointed Assessor in the University Court by Mr. Gladstone when he was Rector of the University.

Besides engaging thus closely in professional matters, Dr. Wood was a busy and large-spirited philanthropist. In matters connected with sanitation, with the condition of the poor, and generally with whatever made for the social or moral good of his fellows, he took a deep interest, and himself worked steadfastly and ungrudgingly to gain the desired goal. It was greatly due to his initiative that the Edinburgh Association for Improving the Condition of the Poor was started, and to his untiring labour that it has achieved so conspicuous a success.

The strain of so busy a life at last did its work, and Dr. Wood was obliged, some years ago, in failing health, to relinquish practice; but idleness was foreign to his nature, and he found himself able to occupy his time fully with philanthropic work, and with various commercial enterprises, until some months ago, when even these had to be laid aside, and literature became his only occupation.

The memory of Alexander Wood will long remain green amongst us as a man of commanding intellect, of bright integrity, of large heart, and of manly Christianity. Those who were brought into close contact with him mourn the loss of a true friend, generous to a fault, and of pure and noble spirit.

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## ORIGINAL ARTICLE.

# NOTE ON A METHOD OF MEASURING THE SPECIFIC GRAVITY OF THE BLOOD FOR CLINICAL USE.*

BY PROFESSOR CHARLES S. ROY,
DIRECTOR OF THE BROWN INSTITUTION.

SINCE venesection has been abandoned as a method of treatment in civilised countries, little or nothing has been learned on the subject of the specific gravity of the blood either in health or disease. The reason of this neglect of so interesting and important a subject is, evidently, to be sought in the fact that it is no longer an easy matter to obtain from the living patient a sufficient quantity of blood to permit of its density being estimated by any of the various methods which are in use for measuring the specific gravity of fluids.

Even before the relinquishment of venesection, however, but few observations are to be found recorded—a fact which might only have been anticipated, considering the time and trouble which must be expended in making each measurement, the necessity of employing delicate chemical balances, and the number of precautions which must be attended to. These technical difficulties render the subject one little fitted to attract the attention of the ordinary physician; and accordingly we find that while physiologists have carefully measured the density of the blood in health, and the differences which it presents in the two sexes and at different ages, the influence of disease on the specific gravity of the blood has received but little attention.

It may be mentioned, however, that the few observations which are recorded on the density of the blood in disease show that the specific gravity of this fluid may undergo very great changes as a result of various morbid conditions. Davy, for example, gives one case in which the density of the blood was found so low as 1038—the normal average in man being 1055.

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* Read before the Physiological Society of London, March, 1884.

The only instrument required for measuring the specific gravity of the blood by my method is an ordinary hypodermic syringe, the needle of which has been slightly altered—its point having been taken off, and the steel tube prolonged backwards, so that its inner end when it is fixed on the syringe is visible from without. Besides this instrument, there are required a number of solutions of salt or other suitable substance of various densities from 1040 to 1075. For all practical purposes, about a dozen and a-half of these solutions are sufficient to enable one to arrive at the true specific gravity of the blood very nearly exactly, although, where absolute accuracy in the measurement is desired, it is advisable to have a larger number of solutions.

In such a case, two dozen are amply sufficient.

These solutions may be conveniently carried in a case containing the requisite number of ounces and a-half or two-ounce bottles, which should be wide enough in the mouth to allow of the syringe being filled from them directly. The following is a list of the specific gravity which I have found the most convenient for practical purposes, viz.—1035, 1037·5, 1040, 1042·5, 1045, 1047·5, 1050, 1052·5, 1055, 1057·5, 1060, 1062·5, 1065, 1067·5, 1070, 1072·5, 1075.

Leaving the appliances required for the measurements in question, I will now proceed to describe the method of employing them. This is simplicity itself.

The syringe having been half or three-quarters filled with one of the salt solutions, a portion of a drop of the blood to be examined (obtained from the finger in the ordinary way) is drawn up into the syringe, care being taken that no air is introduced along with it.

If, now, the blood be of greater sp. gr. than the fluid in the syringe, it at once sinks to the lower part of the latter, while if it be of less density it at once rises to the upper part of the glass tube of the syringe.

In the former case, having emptied the syringe, we repeat the process with a solution of higher sp. gr., and one or two trials enables us to find between what two solutions the drop of blood ceases to sink, and rises instead.

When we have found this we know that the sp. gr. of the blood lies between these two values. As the members of the Society can readily convince themselves, the method is one of extreme delicacy, a very minute difference in density between the blood and the fluid employed showing itself at once by the behaviour of the drop.

Let me now refer for a moment to the degree of "possible error" inherent in the method, and the means by which the greatest accuracy may be attained. A moment's consideration will recall to one's mind that the difference in temperature between the blood and the standard solution into which it is drawn may have a marked influence on the result of the measurement. The effect of this is found, however, in practice to be so slight, that it may, for all practical purposes, be ignored. This is doubtless due to the fact that the small part of a drop, which is drawn into the syringe, at once looses a great part of its heat to the much larger quantity of fluid with which it comes in immediate contact. Whatever be the cause of it, my control experiments invariably showed, that the possible error, where reasonable precautions are taken, is less than a degree of the ordinary sp. gr. scale. These experiments I made by first measuring the density by my method, and then drawing off enough blood from the animal to permit of the sp. gr. being obtained by the method of weighing in a sp. gr. bottle, so that its weight might be compared with that of the same volume of distilled water in the ordinary way.

I do not propose to do more on the present occasion than describe the method, reserving for a future opportunity an account of the results obtained by its help, and I will only mention, for the benefit of those who may desire to employ the method at the bedside, what are the normal limits of the density in man. The following is briefly all that is known on the subject:—The blood of men is somewhat heavier than that of women, the values for the former being from 1056 to 1059, while the blood of females varies from 1051 to 1055. The blood of children is specifically lighter than that of adults. It would also seem that the density of the blood is greater in the morning than it is at night—an effect apparently due to the fluids swallowed during the day.

The above figures are taken from Nasse's article on the blood in Wagner's *Handwörterbuch*.

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# REPORT ON SURGERY.

1. **Hahn, Dr. E.**—Zur Behandlung der Syphilit. Mastdarm-Ulcerationem durch die Colotomie. (On the Treatment of Syphilitic Ulceration of the Rectum by Colotomy.) *Langenbeck's Archives*, Aug. 1884.
2. **Lücke.**—Ueber eine gewöhnliche Ursache von Genu Valgum bei Kindern. (On a Common Cause of Genu Valgum in Children.) *Centralblatt für Chirurgie*, 28th March, 1884.
3. **Treves, F.**—On the Direct Treatment of Spinal Caries by Operation. *British Medical Journal*, 12th Jan. 1884.

4. **J. Noble Smith and Others.**—On Treatment of Caries of the Spine with Sayre's Plaster Jacket. *British Medical Journal*, Dec. 1883 *et seq.*
5. **Smith, S. C.**—On Aseptic Bladder-Washing. *Lancet*, 22nd March, 1884.

1. **Hahn on the Treatment of Syphilitic Ulceration of the Rectum by Colotomy.**—The first part of this paper, treating of colotomy in the left iliac fossa, has been already noticed; we have still to see what is said on colotomy in the middle line of the abdomen, where the transverse colon is to be opened. This operation is applicable to cases where ulceration of the rectum has spread into the descending colon, or where malignant disease of the walls of the latter, has rendered necessary an artificial opening higher up in the canal. Experience having shown that when an artificial anus is made in the right iliac region, there is a risk of the patient sinking from inanition, it is urged as of great importance to make the opening as near the anus as possible. Dr. Hahn shows how this can be done without much difficulty. He has examined a number of bodies of different ages, sex, and general condition as to nourishment, and finds that the transverse colon is very constant in position. It lies below a line joining the two eleventh ribs, and can be easily reached by an incision through the linea alba, beginning at the navel and extending for 7-8 ctm. upwards. The chief difficulty consists in the laying bare and fastening of the colon; and this is why the intestine is so seldom opened at this part, although in a limited number of cases it is very desirable. The great omentum must be divided, so that the colon may be sufficiently pulled forward and sewn. The further steps of the operation are as for anterior colotomy.

In very fat patients the colon is to be freed from its posterior attachments, after being drawn through the wound with the forefinger, so that it may come to lie more easily at the level of the wound. But even after this it tends to sink back so much that, if merely sewn as in an ordinary case, the threads would give way before the adhesion of the peritoneum had taken place. To obviate this, Dr. Hahn passes beneath the colon a curved sound, over which an india-rubber tube is slipped, and secured. The intestine is supported in this way for three or four days, after which the sound and tube are drawn out, and in two days after, when the channel has been closed, the opening in the colon can be made. Though the fixing and drawing forward of the colon in very fat people is not very easy, the finding of it is so very much simpler in this operation than in posterior colotomy that Dr. Hahn even on this ground alone would prefer the former. He would thus advocate anterior colotomy (in the iliac fossa) to posterior colotomy for rectal ulceration, and, where a point above this must be selected, would choose the middle line of the abdomen,—or, as he calls the operation, with reference to its difficulty as well as to its anatomical position, "median colotomy."

2. **Lücke on a Common Cause of Genu Valgum in Children.**—The old fable of Scylla and Charybdis has evidently its bearings on surgical science as well as on other things, for Professor Lücke here shows us how the apparatus devised for suspending stockings from the waist in order to avoid the evils of garters, has itself been probably the cause of many cases of knock-knee in children. He tells us that, for the last ten years, and in an increasing ratio lately, he has noticed a condition of double knock-knee, more or less pronounced, among children brought to him for other causes. Of these patients a few showed some signs of rickets. The majority, however, did not; their legs

were crooked, but as regards other affections, while some were in a weakly condition, the rest showed no important deficiency in nutrition. In such cases Professor Lücke attributes the deformity to the mechanical strain of a form of stocking-supporter which is now commonly worn in Germany by both boys and girls. In this, a band of linen or elastic webbing, attached to the stocking just below the knee, passes up outside the joint and is fixed above the hip to the corset or under-jacket. Whenever the limb is fully straightened, the band is rendered tight, and there results a slight drag on the knee tending to outward rotation (Aussen rotation), to which the child instinctively yields so as to lessen the discomfort as much as possible. Sometimes a stronger band acts by its direct force. While boys have been playing in the streets, Professor Lücke has often noticed this twisting of the leg, and has each time made certain that they were wearing these stocking-supports. He thinks that this might be noticed still oftener among girls. Where the bones are strong and firm, and the muscles well-developed, probably even a stronger dragging force might have no effect; but in the case of slightly-made children with feeble muscles, and especially those with some tendency to rickets, Professor Lücke considers that this continual slight pull must lead to the above result. In confirmation of his view, Professor Lücke points to the important alterations produced in deformed joints or twisted bones by a gentle but constant elastic force. He has also seen knock-knee produced in children with club-foot when the apparatus applied for that affection had been allowed through carelessnesss to act on the knee-joint.

In order to avoid both Scylla and Charybdis, Professor Lücke recommends a woven woollen garter to be worn on the stocking above the level of the knee-joint. How far the above cause of knock-knee may be in action in this country it is difficult to say. The subject, however, is a suggestive one, and possibly elastic bands might be so applied as to remedy the deformity which Professor Lücke considers that when wrongly used they may produce.

3. **Treves on the Direct Treatment of Spinal Caries by Operation.**—This paper was read before the London Royal Medical and Chirurgical Society on the 8th January. In it the author advocates the opening of abscesses resulting from carious vertebræ by an opening in the loin. "A vertical incision was made near the outer edge of the erector spine; the sheath of the muscle and the quadratus lumborum were cut through; the psoas muscle was incised, and the vertebræ reached by continuing the operation along the deep aspect of that structure." The advantages of the operation were pointed out to be that in many cases direct access could in this way be obtained to the diseased vertebræ, and carious or necrosed bone if need be removed, and that drainage to the abscess cavity was thus made more perfect and direct. In the course of a discussion which followed, some surgeons considered that this incision was impracticable in many cases, although on the whole it met with general approval. Mr. Bryant stated that he had previously opened two cases of psoas abscess above the ilium. None of the speakers seemed to be aware that Professor Chiene had advocated the opening of psoas abscess above the crest of the ilium, at a meeting of the British Medical Association several years ago. His object was not so much to expose the diseased bone as to afford a more free and dependent drainage, with a shorter channel for the pus, than can result from an opening in the groin,—also to remove the wound, as far as possible, from the seats of possible putrefactive contamination at the urethra and anus. This most important advantage did not seem to be alluded to in the discussion following

Mr. Treves' paper, but was duly brought forward by Mr. Chavasse in a revival of Professor Chiene's operation in a recent paper in the *Lancet*.

**4. J. Noble Smith and Others on Treatment of Caries of the Spine with Sayre's Plaster Jacket.**—A discussion has been carried on for some months in the *British Medical Journal* as to the merits of the plaster jacket, which it may be of some interest to epitomise. The question was first raised by Mr. Noble Smith in two articles published by him in the above Journal, on 8th and 15th December of last year. In these, after explaining his general plan of treatment, in which rest was a prominent feature,—and laying down certain requisites for any mechanical application that might be made,—Dr. Smith urged the following objections to Professor Sayre's method:—"Plaster of Paris jackets do not thoroughly fix the spine; they interfere with thoracic respiration; they allow the accumulation of dirt; they interfere with perspiration; they often cause constant discomfort; they obscure the region of the disease, and hide ulcers and abscesses when these form; and cannot practically be altered sufficiently often." As a substitute for this apparatus, with its so numerous objections, Mr. Smith recommends one devised by Mr. Chance, and described as follows by Mr. Smith in the *British Medical Journal* for 13th May, 1882:—"It consists of two metal bars passing from a pelvic belt upwards, one upon each side of the spinous processes of the vertebræ. These bars are bent to accord with the angle of deformity, and they reach as high as the second or third dorsal vertebra. Fixed to the upper end of the bars is a pad, to which is attached shoulder-straps. At the angle of deformity each bar is separated from the back by a pad. Between the angle and the pelvic belt is another pad, to which is attached straps, which extend to an abdominal belt. Between the projecting portion of the spine and the pelvic belt the bars do not fit into the curve of the back, as it is not desirable to perpetuate that curve; but, upon the contrary, it is of advantage to control the tendency to curvation, and the abdominal belt acts in such a manner. The advantages of this splint are as follows: (1) it fixes the spine in a good position; (2) it favours thoracic respiration (a very important point in severe cases); (3) it can be accurately adjusted and readjusted by the surgeon himself. No other apparatus that has yet been made, generally known, possess these qualities, and all others have disadvantages which do not belong to this one."

A number of letters have since appeared in the *Journal* in support of Professor Sayre's jacket, and meeting Mr. Smith's objections to it. The writers of these are Professor Sayre, Drs. J. W. Downie, T. J. Walker, M. G. B. Oxley, and Messrs. C. H. Golding Bird, E. L. Freer, and E. Owen. It will not be necessary to consider each letter by itself, but the general consensus of opinion expressed by these gentlemen is—(1) that the plaster jacket, when carefully and properly applied, is really most efficient, and that Mr. Smith's objections to it are more apparent than real; and (2) that from the simplicity of its application, it has the great merit of being easily adjusted by the surgeon himself without the intervention of an instrument-maker. No one has come forward to support Mr. Noble Smith's side of the question; and as many of the writers in support of the plaster jacket have successfully treated several hundreds of cases with it, we may conclude, as a result of the discussion, that the jacket as recommended by Professor Sayre, is still to be relied upon as the simplest, cheapest, and most efficient apparatus for such cases of spinal caries as require mechanical support.

5. **Dr. S. C. Smith on Aseptic Bladder-Washing.**—Dr. Smith here suggests a convenient and simple device for washing out the bladder. This consists of a T-shaped tube, connected with the catheter—filling and exit vessel respectively. To the lower end of the vertical part of the T an india-rubber tube leads to the waste vessel. At one end of the horizontal part of the T the washing-out fluid is led in and passes into the bladder by an india-rubber tube, passing between the other end and the catheter. After the catheter is passed, and the air all driven out of the tubes, the bladder may be washed out by alternately compressing and relaxing the entrance and exit pipes as required, the washing-out fluid being placed above the level of the patient, and the waste vessel below.

Dr. Smith lays great stress on not admitting putrefactive germs into the bladder by the air, but unfortunately gives them free entrance in the warm water, with which he chiefly recommends the washing-out process to be carried on. The bladder cannot long remain aseptic under these conditions. With antiseptic fluids, however, the method may be useful.

CHARLES W. CATHCART.

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## *REPORT ON OPHTHALMOLOGY.*

### *RECENT PAPERS.*

1. **Hippel.**—UEBER DIE JEQUIRITY-OPHTHALMIE. (On Jequirity-Ophthalmia.) *V. Graefes Archiv.*, 1883, iv. p. 231.
2. **Neisser.**—UEBER DIE NATUR DER JEQUIRITY-OPHTHALMIE. (On Jequirity-Ophthalmia.) *Fortschritte der Med.*, 1884, No. 3. Reprinted in *Centralblatt f. pract. Augenh.*, Feb. 1884, p. 51.
3. **Salomonsen and D. Holmfeld.**—DIE ÆTIOLOGIE DER JEQUIRITY-OPHTHALMIE. (Etiology of Jequirity-Ophthalmia.) *Fortschritte der Med.*, 1884, No. 3. Reprinted in *Centralblatt f. pract. Augenh.*, March 1884, p. 91.
4. **Klein.** — EIN BEITRAG ZUR ÆTIOLOGIE DER JEQUIRITY-OPHTHALMIE. (Etiology of Jequirity-Ophthalmia.) *Centralblatt f. Med. Wiss.*, 1884, No. 8. Reprinted in *Centralblatt f. pract. Augenh.*, Feb. 1884, p. 55.
5. **Parisotti and Galezowski.**—DU JEQUIRITY ET SON INSUCCÈS DANS LE TRAITEMENT DES GRANULATIONS. (Failure of Jequirity in the Treatment of Granular Lids.) *Rec. d'Ophthal.*, Sept. 1883.
6. **Coppez.**—SUR LE JEQUIRITY DANS LE TRAITEMENT DE L'OPHTHALMIE GRANULEUSE. (Jequirity in the Treatment of Granular Lids.) *Arch. d'Ophthal.*, March to April, 1884., p. 155 (with discussion in *Soc. Franc. d'Ophthal.*).
7. **Benson.**—THE THERAPEUTIC VALUE OF JEQUIRITY. *Brit. Med. Journ.*, 22nd March, 1884, p. 564.
8. **Eales.**—SEVERE RETINAL HÆMORRHAGE AT THE YELLOW SPOT, SYMMETRICAL IN THE TWO EYES, IN A CASE OF SIMPLE CHRONIC ANÆMIA. *Ophthal. Rev.*, March 1884, p. 69.

9. **Abadie.**—QUELQUES CONSIDERATIONS PRATIQUE SUR L'OPHTHALMIE SYMPATIQUE. (Practical Remarks on Sympathetic Ophthalmia.) *Arch. d'Ophthal.*, March to April, 1884, p. 130.
10. **Fuchs.**—SYMPATHISCHE ACCOMMODATIONS LAHMUNG. (Sympathetic Paresis of Accommodation.) *Klin. Monatsbl. für Augenheilk.*, Jan. 1884, p. 23.

## 1, 2, 3, 4, 5, 6, 7. Various on Jequirity-Ophthalmia.

### I. PATHOLOGY.

Since the subject was noticed in this Journal (No. 2, p. 28), numerous papers have appeared,* dealing both with its pathological and its clinical aspects. The questions raised by Sattler's paper, there reviewed, as to the relations of micro-organisms to nutritive media and to disease, are of such general interest, that it is no wonder many workers have turned their attention to the subject, and reviewed his arguments and results.

The papers named above contain not a few discrepancies on minor points; but all agree in denying Sattler's main conclusion—that a peculiar form of bacillus is the cause of jequirity-ophthalmia. A short resumé of the main points generally agreed upon will best serve our purpose here. These conclusions are drawn, for the most part, like Sattler's, from experiments on rabbits.

A suitable infusion of jequirity-seeds developes large numbers of a somewhat peculiar bacillus, which can also be grown in suitable cultivating media. This infusion, when applied to the conjunctiva, produces a severe and characteristic ophthalmia. But the bacilli generally present are not the cause, for the following reasons:—

(1.) An infusion prepared with proper precautions developes no micro-organisms when inoculated in cultivating media, yet produces the jequirity-ophthalmia.

(2.) This is not caused by the bacilli when cultivated in other media than jequirity infusion.

(3.) The inflamed tissues and the conjunctival secretion do not contain the bacilli, nor do they produce the characteristic ophthalmia when inoculated in another eye.

(4.) The immunity against a second inoculation spoken of by Sattler is a purely local phenomenon, depending on the structural alterations produced by the inflammation; the second eye suffers as severely as the first had done if similarly treated. It is thus quite different from the immunity generally found in true infectious diseases.

What, then, is the cause of the ophthalmia?

The activity of the infusion is destroyed by a degree and duration of heating insufficient to destroy the vitality of the bacilli—boiling for 30 seconds or less (Klein); exposure for an hour to 65°-70°C. (Salomonsen); and depends on a chemical substance resembling in this respect the pepsin ferment (Klein).

While the evidence is so conflicting, it would be rash to come to a positive conclusion as to which view is the correct one. Yet the balance seems decidedly to incline in favour of a non-living cause. The whole discussion is a very emphatic warning of the extreme care necessary before a causal connection can be proved between micro-organisms and disease. A judicious scepticism will not regret to see the supremacy of one of the reigning dynasty of micro-organisms so strongly questioned.

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* Altogether the publications on the subject number over 100.

### II. Therapeutics.

Here, too, the most contrary opinions are expressed. But while few of those who have tried the treatment confirm Dr. Wecker's enthusiastic anticipations, still fewer have had such unfavourable results as Deneffe (*vide* Journal, No. 2, p. 30), or Parisotti and Galezowski, who think that it merely masks for a time the granulations, and has no permanent beneficial effect. Most writers have met with many satisfactory results, and with but few where the treatment produced any aggravation. The cases of granular conjunctivitis most benefited appear to be just those where other methods, except inoculation from purulent conjunctivitis, have least effect: those of long duration, with numerous and large granulations, or with severe pannus. After subjection to the jequirity-ophthalmia, moreover, eyes not immediately benefited appear sometimes to have become more amenable to other remedial measures. Salomonsen and Holmfeld find a glycerine extract of jequirity-seeds (1 to 25 of glycerine) to be very active, and to retain its activity for a month. They think it will be much more convenient than the unstable watery solutions.

On the whole, I think we are entitled to regard jequirity as an important addition to the means we possess of treating granular lids. In corneal affections, other than pannus, its value is more doubtful.

8. **Eales on Retinal Hæmorrhage in Simple Anæmia.**—This complication, common in the more serious forms of anæmia, is rare in "chlorosis," of which Eales' case seems to have been a well-marked example (a woman, æt. 21). The anæmia was extreme, and had been of long duration. In each eye the fundus was very pale, and presented not only small flame-shaped hæmorrhages, mostly near the disc, but also a dark hæmorrhage, somewhat larger than the disc, surrounding and obscuring the macula. Vision was less than $\frac{15}{200}$, and there was a large central scotoma in each eye. Under treatment with purgatives, iron, and suitable diet, the anæmia rapidly yielded; and in little more than a month had disappeared: while no trace of the retinal hæmorrhages could be found. After correction of the refraction, it was $\frac{20}{40}$ and $\frac{20}{70}$ in the two eyes; not unlikely as good as it had ever been,—a happy result hardly to be expected from the appearance the eyes at first presented.

9. **Abadie on Sympathetic Ophthalmia.**—The chief point of interest in this paper is the theory brought forward by the author, and supported by two cases, one previously published, one from his own practice, regarding the causation of those rare cases where this disease first appears a considerable time after enucleation of an injured or diseased eye. In both cases there was, when the patient came under observation for the sympathetic ophthalmia, great tenderness on pressure over the enucleation-cicatrix; and removal of the cicatrix and surrounding tissues was followed by disappearance of the inflammation. In his own case, an iridectomy was performed on the diseased eye at the same time as this operation, and the good result might be attributable to either. In the previous case, the good result seemed to depend on the excision of the tender cicatrix. Such material is not sufficient to base a conclusion upon; but the suggestion that the disease may be induced by irritation of the portions of nerves left in the orbit after enucleation is a valuable one, and may lead to the cure, or, better, prevent the occurrence of these disappointing and troublesome

cases. Abadie also insists strongly on the importance of vigorous treatment of the sympathising eye, especially by mercury and atropine, besides the enucleation of the offending globe.

10. **Fuchs on Sympathetic Paresis of Accommodation.**—This curious case may be mentioned in this connection. The patient (aged 28) came a month after injury, a week after enucleation of one eye, complaining of a feeling of strain in the remaining eye whenever he tried to work. The near point was found to be 6 inches, and gradually receded in six weeks to 14 inches, where it remained. No other abnormality was observed, except on one occasion slight tenderness on pressure. The onset and persistence of failure of accommodation under such circumstances, without any other assignable cause, seems distinctly to indicate a sympathetic origin, in spite of the absence of all the other symptoms of sympathetic ophthalmia.

R. A. Lundie.

# REPORT ON OTOLOGY.

## RECENT PAPERS.

1. **Moos.**—Ein Fall von Partieller Labyrinth Affection nach Mumps. (A Case of Partial Labyrinthine Affection after Mumps.) *Berlin. klin. Wochenschrift*, 1884, No. 3.
2. **Voltolini.**—Tuberkel-Bacillen im Ohre. (Tubercle-Bacillus in the Ear.) *Monatschrift für Ohrenheilkunde*, Jan. and Feb. 1884.
3. **Moos.**—Ein Fall von Neuralgie, Hauptsächlich im Bereich des Zweiten Trigeminus-Artes durch Exostosenbildung im Aüsteren Gehörgang bedingt. (A Case of Neuralgia, affecting principally the Distribution of the Second Division of the Fifth Nerve, and caused by Exostoses in the External Meatus.) *Berlin. klin. Wochenschrift*, 1884, No. 8.

1. **Moos on a Case of Partial Affection of the Labyrinth after Mumps.**—The subject of deafness after mumps has recently acquired a very great amount of attention from Continental aurists, and it is difficult to take up any journal on otology without finding one or more cases given in detail, with sometimes no other purpose than to demonstrate that epidemic parotitis not unfrequently produces incurable disease of the labyrinth. This diligence in reporting clinical histories—shown by our foreign *confrères*—is all the more surprising from the fact that in Britain it has, since the time of Toynbee, been considered an accepted fact that the poison of mumps frequently attacks the internal ear. To quote from the last-named author,—"The peculiar poison which causes the disease generally known by the name of mumps, is very often the source of complete deafness, which, however, usually occurs in one ear only" ("Diseases of the Ear," p. 361, 1860). Were further proof necessary that to English aurists this effect of parotitis on the auditory apparatus is no new thing, it is afforded by the statement of Hinton that "next, or perhaps equal, in frequency

to scarlatina in this respect stands mumps, which has an affect on the nervous apparatus of the ear, &c." ("Questions of Aural Surgery," p. 220, 1874).

The case recorded by Moos is, however, interesting, because the author was enabled to diagnose a partial affection of cochlea by the use of tuning-forks of different pitch. Thus in the ear tested, the patient was able to hear by bone-conduction only low notes and the ticking of a watch. Moos, therefore, concluded that the branches of the auditory nerve, which supplied the cochlea in the neighbourhood of the fenestra rotunda, were damaged, and from the fact that the watch was heard, he moreover felt himself justified in concluding that the utricle was intact.

By a careful study of the breadth of the basilar membrane in different parts of the cochlea, and from the pathological examination by Moos and Sheinbrügge of the cochlea of a patient who was deaf to high notes only, it has been established that those filaments of the auditory nerve which supply the base of the cochlea (near the fenestra rotunda) react to high notes; but we believe it yet remains to be proved what function (if any) in connection with the act of hearing is fulfilled by the utricle.

2. **Voltolini on Tubercle-Baccillus in the Ear.**—The author discusses the common occurrence of otorrhœa in phthisical patients, and states that this is by no means always a late symptom, but may occur comparatively early in the course of the disease. The ear affection is, of course, invariably associated with a perforation of the membrana tympani, which is often very small, and situated at the lower margin of the drumhead. In the discharge poured through such an opening, Voltolini has often discovered tubercle-bacilli. Caution is necessary in taking out pus for examination, as, if it be obtained from the external meatus, it is apt to contain fatty matters (sebaceous, &c.), which interfere with the staining process. He therefore recommends that a small piece of clean sponge be passed down to the margin of the perforation, or, if the latter be large enough, into the tympanum, and so moistened with discharge and then applied to cover-glasses, which are put into the staining fluid.

3. **Moos on a Case of Neuralgia caused by Exostoses in the Meatus.**—The patient suffered from severe paroxysms of pain, which gradually became more frequent and of longer duration. The pain affected principally the region of distribution of the second and third divisions of the fifth nerve, and the right upper jaw was extremely tender—so much so, that for some months before examination the patient was unable to masticate with the teeth of that side. Inspection of the meatus showed the presence of three exostoses growing respectively from the posterior, the superior, and the anterior wall of the canal. Examination with a probe revealed the fact that the posterior exostosis was the seat of pain, and it was accordingly removed by means of a chisel. From the time of the operation the patient experienced complete immunity from all pain.

P. M'BRIDE.

# *MEETING OF SOCIETY.*

## EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

An Ordinary Meeting of the Edinburgh Medico-Chirurgical Society was held on the evening of Wednesday, 2nd current, and was presided over by Dr. Littlejohn, President.

Dr. W. A. Finlay exhibited a patient—a lad of sixteen years of age—on whom he had, after consultation with Dr. Watson, performed amputation at the hip-joint for acute disease, about eight months ago. An incision was made about one and a-half inches above the acetabulum and extending along the neck of the femur and centre of the great trochanter, to a point below its inferior border. The soft parts were dissected off the bone, and it was then found, as had been anticipated, that the shaft was so much involved with the disease as to render amputation necessary. The incision was, accordingly, extended down the outer side of the femur to such an extent as was required to give a sufficient flap. At this point, an elastic band was applied firmly round the soft parts between the pelvis and the dislocated femur, and the limb was removed with scarcely any loss of blood. Five months later, he removed a large piece of bone from the acetabulum and gouged away a considerable quantity of necrosed bone from the ischium. The incision necessary for this somewhat tedious operation was made from behind, and still showed a very slight sore. The patient was one of a strumous family, and small of his age. He was admitted to Leith Hospital on the 8th of June, and was quite well thirty-three days before admission. He then complained of pain in the inguinal region, the consequence of a blow received sometime before, and the pain increased in severity during the day, and caused him to leave his work. On admission to the hospital, there was some swelling at the seat of the pain, which was now extreme, and the swelling gradually increased. On 20th June, ʒ20 of pus was taken from the swelling, and the amputation was performed on the 22nd. Thus only forty-seven days had elapsed between the first feeling of pain and the operation. He (Dr. Finlay) strongly commended the efficacy and simplicity of the elastic tourniquet, which he had, by advice of Dr. Watson, employed for commanding the hæmorrhage.

Among the pathological specimens exhibited was one by Dr. M'Gillivray—being one-half of a Lower Jaw removed for Malignant Tumour. The case was one of interest, from the fact that an epithelioma of the lip had been removed from the same patient about nine months before by another surgeon in the hospital, and that the new growth had proved to be a sarcoma affecting the bone, as had, indeed, been anticipated, though the fact of the prior epithelioma had made the diagnosis a little more difficult than it would otherwise have been. Professor Chiene exhibited two specimens—both of considerable interest. That possessing most interest was an Ovary, which he had recently removed from a little girl of three years old—the youngest child, he believed, that had been so operated upon. The child had been sent to the hospital by Dr. Spence of Burntisland. Three days before admission a swelling was observed in the inguinal region, having exactly the appearance of a strangulated hernia, which Dr. Spence tried unsuccessfully to reduce. She was brought into hospital on 10th February, and, from the fact that the child's bowels were moved regularly, and that it had none of the ordinary appearances of a child suffering from strangulated hernia, he (Professor Chiene) thought at first it must probably be some inflammatory swelling, of the nature of a gland. But, there being no change with hot fomentations, he on 30th February cut down upon the swelling, and found it exactly like the bowel in appearance. At first, he thought he had to deal with a diverticulum, but it was seen to be the fimbriated extremity of the Fallopian tube, with a larger and redder portion, which was apparently extravasated blood. Mr. Bell suggested that the growth might be sarcomatous, and it would be interesting to see if that were so; but he had delayed microscopic examination until the Society should see the tumour as it was. The wound healed by the "first intention," and the child left the hospital nineteen days after the operation. The other specimen, exhibited by Professor Chiene, was a Calculus, which he had removed from a boy eight years old, who had been sent to the hospital by Dr. Hutchison of Cockermouth, and which was in shape a cast of the membranous urethra. The boy had made water frequently, and there was a little pus in the urine, but he had no other symptoms of the condition. The interesting feature of the case, however, was that on rectal examination he found the stone, while the sound passed it, and gave no indication of its presence either in the bladder or in the urethra. He believed the larger extremity of the stone lay in the bladder—the rest being in the membranous urethra. He cut down in the middle line in front of the anus, opened the urethra at the triangular ligament, and easily removed the calculus through a slit made in the prostate.

An exhibit out of the usual run was made by Professor Chiene. This was a Photograph of a Drawing-room Chair, which had been made for John Hunter, under the direction of Mr. John Goodsir, from the wood of the acacia hæmatoxylon, brought to this country by Captain Cook. The wood had been presented to Hunter by Joseph—afterwards Sir Joseph—Bankes, and President of the Royal Society; and out of the wood were made two chairs and a writing-desk, which, with one of the chairs, had now been presented to the University by Mr. John Goodsir's representatives. Professor Ackland had another chair, and Mrs. Buckland another, which had been made out of the bed on which Hunter died, and which at her death was to be presented to St. George's Hospital. The chair presented to the University was, with the escritoire, to be kept in the surgical department, and could be seen by any one who wished to see it.

The Chairman next exhibited the Larynx of a man, who had by a suicidal wound greatly broken up the larynx. It was exceedingly rare, and that only in cases of suicide or insanity, to find the wind-pipe much injured in these wounds. He had examined a great many cases of suicide during the last thirty years, but no such case had previously come under his care. By the kindness of Dr. Keiller, who had previously shown it, he was enabled to let the Society see a larynx exceedingly broken up, in a case in which the suicide was committed at dinner with a small knife, which was found firmly grasped in the hand. In the present case, the man was found accidentally lying in the corner of an area in Home Street, while a large carving-knife, with which the wound had been inflicted, was got about seven yards from the body. He had previously given indications of insanity; but had that morning made a good breakfast, and gone out to go to his work. One of the arytenoid cartilages was detached, and a portion of the thyroid actually awanting, while a portion of the œsophagus was cut out. The great vessels had not been injured, with the exception of the jugular on the left side, and death was probably due to the gradual oozing of blood into the air passages.

The slowness of the fatal result also explained the finding of the knife at a distance, not firmly grasped in the hand, as in Dr. Keiller's case. This last case was of interest in view of the suspicion which might attach to persons in the house of a suicide.

Dr. JOSEPH BELL mentioned the case of a suicide in the hospital, which had been observed by two other patients. The man had inserted the small blade of a pen-knife, which he had for cutting tobacco, behind the larynx, and sawn it out from behind. There was great destruction of the larynx.

Dr. CHURCH showed to the Society a Sleeve-link which had been swallowed by a boy, and which had been safely passed *per anum* in about a couple of days. Porridge had been given, but no purge.

Dr. FOULIS gave a demonstration, which unfortunately miscarried somewhat, of the Ciliary Action and Circulation in the Tadpole. The ciliary action, or, rather, its consequences, as shown in the active movement of water round the creature, was well seen; but the circulation in the gills was not successfully demonstrated. The creature, Dr. Foulis explained, had developed in eight days from a mass of ciliated cells, and was now ciliated all over the body. Even the blood-corpuscles in the gills yet retained the cilia of the cells from which the creature had started on the path of development. He did not know that this had so far been observed.

The only original communication made to the meeting was one made by Dr. BRUCE, in the shape of a paper "On Chronic Poisoning by Bisulphide of Carbon." The paper contained the valuable record of three cases of this poisoning, the first which have so far been recorded here. The cases were those of three men who had been employed in what was called the curing-house of the Edinburgh Rubber Works. The work done in the curing-house was that of superintending the passage of a sheet of the prepared rubber through a solution of chloride of sulphur and bisulphide of carbon; and the men engaged in it were thus frequently exposed to the fumes of the bisulphide. The first of the three men suffered comparatively little for about two and a-half years, having taken care to be as little in the vapour as possible; whereas the two who succeeded him in the work suffered early from want of this care. In 1883 certain symptoms began to show themselves in the first man, which were minutely detailed, and which, briefly stated, were: loss of appetite; a feeling of langour and weakness, with dizziness; gradual emaciation, with loss of muscular power, and interference with sleep in the shape of horrid dreams, from which the man would start up to find himself bathed with a profuse sweat. He suffered, besides, from a cold band round the temples, and coldness and numbness, with tremblings, in the extremities, specially marked in the right arm and both legs. In this man also were developed certain peculiar vision effects. Latterly, he came to have a peculiar bluish-green vision, which, on his going to the Eye Infirmary in Cambridge Street, and having atropine dropped into the eye, changed to a red vision for about twenty-four hours. His sight gradually got so bad that he failed to recognise his own son a few yards away. He had at last to give up work; and, taking his treatment into his own hands (he had, he said, never had a doctor in his life, and had always been a healthy man up to that time), went to the country, and tried the effects of fresh air and good food. In about three months he recovered perfectly, and had only come under his (Dr. Bruce's) notice two or three days ago. In this and the succeeding cases, the last illness seemed to extend over about three weeks; and the skin, breath, and urine exhaled the bisulphide of carbon. The second and third men, who took less care to keep out of the vapour, quickly developed symptoms analogous to those already indicated, except that the vision effects were not observed. In the second case, the emaciation and muscular weakness were so marked that the man had latterly to creep upstairs to his house on his hands and knees, and could not raise a tumbler to his mouth with one hand, without the aid of the other to raise the elbow. In the third case the affection was slighter. In these two cases, which had been under his care at the Fountainbridge Dispensary, the treatment consisted simply in removal from the affected atmosphere, Faradisation of the muscles, and tincture of nux-vomica internally; and the cases had gradually improved. All three men were produced to the Society in illustration of the recovery effects. He had to add that, owing to its injurious effects on the men, the Company had given up the use of the bisulphide of carbon, and were now using petroleum spirit.

The **President** said that the paper was of much interest, as well as value, from the fact that the previously recorded cases were, so far as he knew, from foreign sources. It was curious that the use of the bisulphide of carbon had not given rise to complaint on the part of the public, but that the escape of the petroleum spirit-vapour had. He had recently had occasion to write to the directors to take steps to prevent the escape of the petroleum spirit-vapour on that account.

Dr. **Craig** said he had not, in the course of ten or fifteen years' practice in the district, met with a case of this kind, and wished to know when the use of the bisulphide of carbon began, and also whether similar effects to those now described had occurred in other workmen. The treatment mentioned was undoubtedly indicated, and had proved very successful. He should, however, be inclined in such a case to try phosphorus. The bisulphide of carbon was, he added, officinal in America, and was there used externally for the cure of deafness depending on deficiency of wax or a low state of the nerves of the ear, and for tic and neuralgia of all kinds.

Dr. **Joseph Bell**, observing on the probable pathology of the cases, said that the symptoms had suggested a parallel to him between this condition and post-diphtheritic paralysis. This suggested the idea that the pathology was connected with the vaso-motor rather than with the spinal nerves. Following out the parallel, post-diphtheritic paralysis had no particular treatment except time, fresh air, and good food, with perhaps nux-vomica as here. The Society was extremely indebted to Dr. Bruce for bringing before it something quite new.

Dr. **P. A. Young** mentioned a case of tightness, with pain, round the head —such a symptom as Dr. Bruce mentioned in all his three cases—which had occurred while he was a house-surgeon, which he had at once cured by the application of bisulphide of carbon, the agent which seemed in these cases to cause the symptom.

Dr. **Argyll-Robertson** took notice of the vision effects which had been noticed in the first of Dr. Bruce's cases, and which, he thought, seemed to be entirely due to some peculiar poisoning of the nervous system. It was a curious fact that they were confined to the one case, and might have been a peculiarity of the individual nervous system. Extravasation of blood into the vitreous humour could not, he thought, account for the vision effects, as the extravasation could not have been entirely removed, as must here have been the case, even in three months. Colour changes, as they knew, were also sometimes due to poisoning of the nervous system by santonin; and, as had been seen in a railway case, to nervous shock. But none of these causes were here operative.

Dr. **James** asked if Dr. Bruce had formed any theory as to why atropine should have caused the greenish vision to change to red?

Dr. **Hare**, also adverting to the possible pathology of the cases, asked if Dr. Bruce had formed any ideas as to this, and, if so, what these were. Did he consider that the effects were of a purely functional character, or had any organic substratum at all? He also wished to know from Dr. Bruce if he had come across any similar effects from hyper-stimulation of the peripheral end-organs. It had occurred to him (Dr. Hare) that the constant application of this stimulus to the olfactory end-organs, would produce a condition of reflex inhibition so far altering the trophic condition of the body as to produce the effects described.

Dr. **Bruce**, in reply, said that the treatment by phosphorus, along with Faradisation, was strongly recommended by the Paris physician who had most cases of this kind—fifteen, he thought. As to the pathology of the cases, none of these chronic cases had ended fatally, and so they had no pathology, in fact. As to theory, certainly Dr. Hare's idea did not occur to him. He rather thought there was a general saturation of the whole system with the poison, from the fact that it was exhaled from all sources. The bisulphide of carbon was a solvent of fats, and it had occurred to him that the fat was actually dissolved by it out of the body. The greater affection of the right arm and lower limbs he accounted for by the fact that the vapour floated about the lower part of the room, and that the right arm was most employed in the work; these extremities being thus most exposed to the vapour effects. The remarkable fact of the green blindness adverted to by Dr. Robertson supported, as he thought, the idea that there was a general saturation of the nervous system with the poison. He had formed no theory as to the cause why the atropine had changed the green vision to red. The bisulphide of carbon was first used when the first patient began work in the curing-room. One or two other men were put into the room and affected slightly; but they took the alarm, and left the place. No other severe cases than the ones recorded had occurred in the works; and there were no cases of immunity.

F. A. Maciver.

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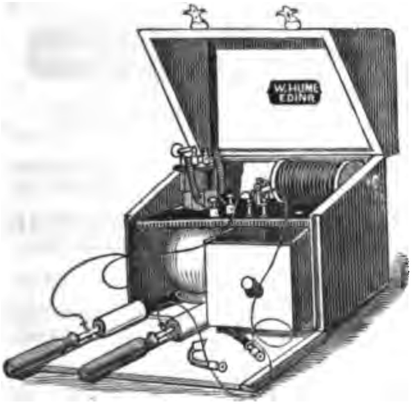

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PATHOLOGIST TO THE ROYAL HOSPITAL FOR SICK CHILDREN;
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|---|---|
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| SUBSCRIBED CAPITAL, | 2,000,000 |
| PAID-UP CAPITAL, | 500,000 |

### II. FIRE FUND—

| | | | |
|---|---|---|---|
| RESERVE, | £844,576 | 19 | 11 |
| PREMIUM RESERVE, | 362,188 | 18 | 3 |
| BALANCE of Profit and Loss Account, | 67,895 | 12 | 6 |
| | £1,274,661 | 10 | 8 |

### III. LIFE FUND—

| | | | |
|---|---|---|---|
| ACCUMULATED FUND (Life Branch), | £3,274,835 | 19 | 1 |
| Do. (Annuity Branch), | 473,147 | 3 | 2 |
| | £3,747,983 | 2 | 3 |

## Revenue for Year 1882.

| | | | |
|---|---|---|---|
| NETT LIFE PREMIUMS and INTEREST, | £469,075 | 5 | 5 |
| ANNUITY PREMIUMS (including £108,992, 2s. 4d. by single payment) and INTEREST, | 124,717 | 7 | 11 |
| | £593,792 | 13 | 4 |
| NETT FIRE PREMIUMS and INTEREST, | 1,157,073 | 14 | 0 |
| **REVENUE FOR YEAR 1882** | £1,750,866 | 7 | 4 |

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*A MANUAL FOR STUDENTS AND*
*PRACTITIONERS.*

BY

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PATHOLOGIST TO THE ROYAL HOSPITAL FOR SICK CHILDREN;
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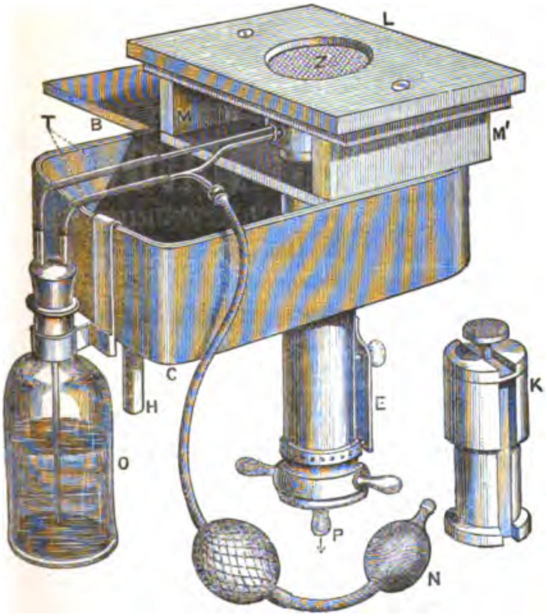

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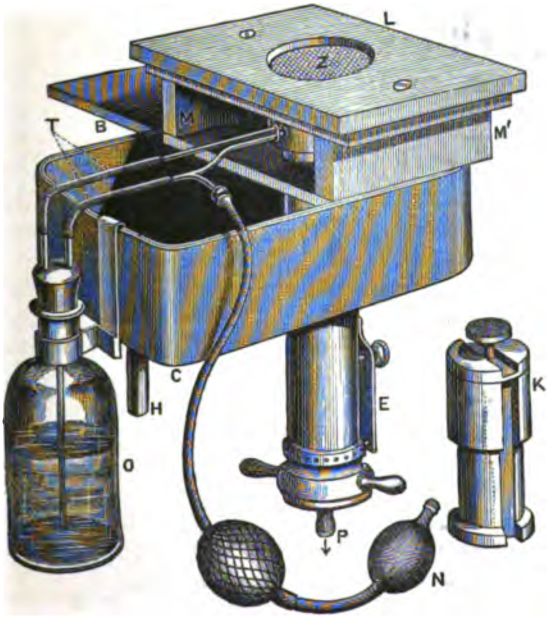

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I hereby certify that I have carefully analysed a sample of "Maltine" forwarded to me by the Maltine Manufacturing Co., Limited, London, and have contrasted the results obtained therefrom with the analyses made by me of four other well-known Extracts of Malt. I find that the Maltine is unusually rich in natural Diastase or digestive principles, as well as in nutritive or flesh-forming, and in phosphatic or tone-producing, ingredients. It contains, in a condensed form, all the important principles present in malted grains—such as wheat, oats, and barley; it is highly palatable; and when incorporated with articles of vegetable diet—such as bread, potatoes, &c.—it rapidly assists in the digestion and solution of the farinaceous materials, so that they may be readily absorbed into the system. In all the digestive and nutritive properties, the Maltine materially exceeds in power and efficacy any of the other Extracts of Malt which I have analysed; and I am confident that the Maltine not only deserves the highest place among such preparations, but that it will prove itself to be an able and successful factor in the assimilation of food, especially where the digestive functions are somewhat impaired, or are in need of tone or strengthening.

## A REPORT ON MALTINE. By Prof. CHARLES R. C. TICHBORNE, LL.D., F.C.S., M.R.I.A., &c.

DUBLIN, 10*th November*, 1883.

Having examined the principal unfermented Extracts of Malt in the market, I find Maltine is the richest in two of the most important ingredients in these foods—namely, the phosphates, or bone formers, and that peculiar farinaceous digestive called diastase. Maltine may, in fact, be said to consist of about 80 per cent. of pure food in its most concentrated and assimilable form. This 80 per cent. may be divided as follows:—

**5½ per cent. of Flesh Formers. 74 per cent. of Heat Givers. 2 per cent. of Bone Formers.**

Add to this the Diastase, which imparts to it the curious power of digesting all farinaceous food outside itself, and we see in Maltine a most valuable adjunct to our invalid diet. In respect to the Diastase, Maltine seems remarkably energetic, and at the temperature of the human body, one part liquefied twenty parts of starch in two minutes, and had completely changed or digested that body in about one hour. Some so-called Malt Extracts that I have examined do not seem to possess this property at all. It is probable that they are merely inverted sugars artificially prepared for brewing purposes. Maltine possesses all the characteristics of a cereal extract as prepared from the grain, and there can be no question about the genuineness of this preparation. It also seems to be prepared with great care. I consider it a happy idea to combine the three most important cereals used in human dietary. It is only necessary to consult any work upon dietetics to see that there is a considerable difference in the composition of the various grain crops. By combining these three important substances—barley, oats, and wheat—we get a food which represents the average composition of the three cereals, and that food already digested for our use, a condition of immense value to the physician in those special cases where the digestive functions are impaired.

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**VOL. I. SATURDAY, MARCH 1, 1884. NO. 21.**

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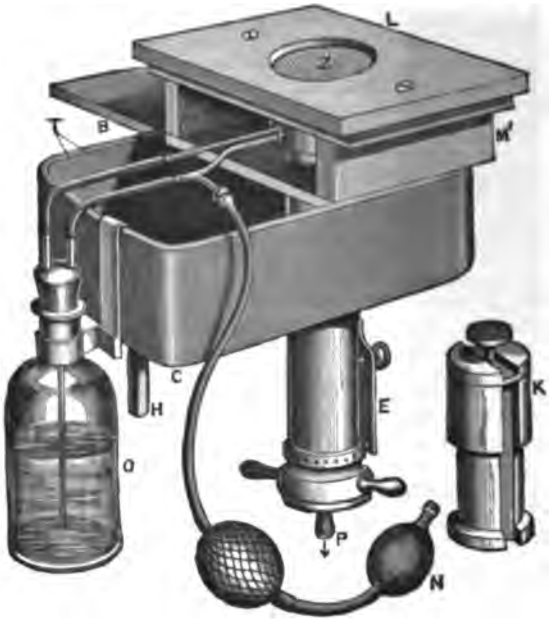

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